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A CENTURY OF HOSPITAL BUILDING FOR THE INSANE.

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By JOS. G. ROGERS, M. D.,

Logansport, Indiana.

Gentlemen of the Association:—

One of the duties of the President of your ancient and honorable body is the presentation of a formal address. Under the law of precedent and custom, this may be historical, biographical, pathological, therapeutical, ethical or, what not? It may and should be replete with good rhetoric, and its tone may be mildly suggestive, but it must not contain any criticism or dogmatic, right-from-the-shoulder, good advice; this is the special prerogative of the man-up-a-tree, who sees us "as ithers see us," and is therefore competent to correct our errors and lead us in the way we should go.

Now in seeking a topic for the present discourse, in fulfillment of this duty, within the limitations referred to, I have found the field to be trodden hard all over—so well has it been traversed by my honored predecessors—and there appears to me to be nothing absolutely and directly medico-psychological which promises a good return from present cultivation on my part; therefore, I have been impelled to go beyond established boundaries, and, as a result, beg leave to submit some memoranda

on what might be termed domiciliary psychiatry, in other words, on Hospitals and Homes for the Insane.

It has been said by some who are interested in other matters just now that this subject was exhausted by the founders of this society and is no longer worthy of its dignified attention. But that was forty years ago; and what has been done since may, after all, be of interest to some at least of our members. Indeed, having been much engaged in the designing and construction of such homes, I confess that I am influenced by the old maxim, *ne sutor ultra crepidam*, and deem it wise to stick to my last. That the insane require special domiciliation and environment goes without saying; that conditions in these respects have much to do with their welfare is a lesson of experience; and that the perfection of these conditions is second to no other desideratum in their care is a dictum in which the practical psychiatrist will join me, I am sure.

Early diagnosis of mental disease and of correlative maladies, prompt separation from accustomed surroundings, judicious treatment—mental, moral and physical—the careful observation of clinical and pathological facts, at the bedside and in the laboratory, and a proper recording of the same; even the infatuating search for the ever-evasive missing link between mind and matter—all these are vastly important, but none is more so than that the insane patient shall be in a domicile well suited in every way to his peculiar conditions and needs.

Unfortunately, to absolutely fulfill this requirement is often impracticable. So many and so incongruous are the conditions to be met, that even theoretical methods and means must conflict, and the practical sum total must involve more or less compromise.

This is true more particularly of public provision for the insane. The rich may find perfect fitness in individual homes or in small establishments for special classes, but it is not my purpose to discuss the wants of these in this relation; ability to pay usually causes supply and demand to meet half-way; they can help themselves. When the State pays, however, cost often limits the embodiment of the ideal; custom and routine too often antagonize the best laid schemes, and popular prejudice, based on ignorance and neglect, can be cleared away from the path of improvement only by a slow and laborious enlightenment. For-

tunately, the heart of the people is not hard, and when a need is felt and fully understood, promising methods are usually approved and means are provided with a free hand.

All Christendom has not advanced alike in this relation, but the tendency is everywhere patent, and it is sure that effort everywhere will be more or less repaid. In the universal iconoclasm in thought and action which marked the revolutionary ending of the eighteenth century, modern progress in the care of the insane may be said to have had its beginning. All before showed a history of crude, cruel, careless, custodial neglect. With the radical reforms of Pinel in France, and Tuke in England, in general treatment, arose gradually a demand for better homes, affording an increased measure of comfort and privilege. The madhouse slowly gave way to the asylum, the gloomy cell to the pleasant chamber, and the dark-walled, stone-paved court to the sunny airing ground. Later, with the effort and hope to cure rather than simply keep, came the hospital, with the resident medical staff, neat, clean wards, special arrangements of space and ground plan, and pleasant groves, lawns, gardens and farm lands, affording agreeable relaxation and occupation to many inmates. Institutions of this class slowly multiplied in the more enlightened parts of the world, being established and maintained by the State or by organized charity. So marked was their superiority over the older establishments that they became more and more numerous, and, under the pressure of requirement, the size became greater and greater until it was excessive. The quadrangular and linear plans in vogue were found to be inadequate and gave place finally in new construction to the arrangement known as the Kirkbride System, which permitted the aggregation of a number of buildings, partially detached but still under one roof. While retaining the corridor, a relic of the monastery, and used in all older methods of construction, it provided an arrangement of sections, *en échelon*, in which, while more or less connected at the ends, the alignment was such that light and air could enter into the corridors by large end windows, which were usually supplemented by alcoves and bays about the middle of the sections, which were mainly composed of small rooms on each side of the corridor.

The classical work of Dr. Kirkbride on hospital construction

was a guide for builders everywhere for many years, and Europe as well as America, is now dotted all over with structures embodying his suggestions, many of them, however, far transcending in their costly, embellished, monumental architecture, their simple, modest, convenient prototype in the City of Brotherly Love. This is particularly noticeable in the State institutions of America, less so in the county and borough asylums of Great Britain, while the smaller establishments of benevolent corporations everywhere, as well as the county and municipal institutions of America, have, as a rule, remained quadrangular, irregular or nondescript, with little or no pretention to architectural elegance—often very comfortable, but utilizing the plainest means to meet ends.

With increasing density of population and progressive expansion of State care, the tendency to overcrowding, enlarging, and then overcrowding again, resulted, some thirty years ago, in the evolution of a system of construction embodying the principle of segregation in smaller, detached buildings, grouped about a common center, the latter accommodating the various departments of administration. Variously modified, this has been variously called the "cottage plan," the "house plan," the "block plan," and the "pavilion plan"—the first name most popular, the last, perhaps, most appropriate.

The cottage system, in which a limited number of patients, from twelve to twenty, are accommodated as a family in a building of cottage architecture, completely isolated but not too remote—an aggregation of such composing the institution—has been advocated by practical alienists in England and by others in America, but as far as I am advised, no modern establishment has been organized entirely on this plan. Here and there throughout the world, this cottage system has grown into limited existence as an excrescence on the body of an established institution, from force of circumstances, as at Cheadle, in England; and attempts have been made in recent constructions to provide partially for family groups in relatively independent domiciles, as at Richmond, in Indiana.

State policy, however, overrides the plans of scientific philanthropy and the actual trend is towards larger congregation and less cost. For more than a thousand years, the Belgian Com-

mune of Gheel has stood as a prototype of this system, but has stood alone, if we may except the communities at Kennoway and other places in Scotland, and the so-called "boarding-out" method advocated and practised to a limited extent elsewhere.

The essential feature of the *house plan* is the more or less complete separation of the day and night apartments, the latter being usually on the second floor. In such, the corridor, if it exists at all, is narrow and is meant to serve only as a means of communication and transit.

The *pavilion*, or *block plan*, is a further development of the house plan and consists of a grouping of detached buildings resembling ordinary houses, sometimes connected, however, by covered ways of one story. The day rooms and dormitories are of varying sizes, the latter often having capacity for a number of beds, fifty or even more. Single rooms and small dormitories are also provided, but, in recent construction in this country and in Europe, not in sufficient relative number, as has been proven by experience very generally. This system was first used in France, soon after in Germany and in this country and later, to a certain extent, in Great Britain and elsewhere. With a few exceptions, in all new State hospitals for the insane erected within the last twenty-five years, this method has been applied, and the same may be said of most notable additions to existing institutions of older types. The pioneer in America in the adoption of the pavilion system was the State of New York, in the hospital at Willard, from plans prepared by Dr. John B. Chapin. About the same time, Illinois, at Kankakee, Pennsylvania at Norristown, Ohio at Toledo and Indiana at Richmond and Logansport, erected hospitals composed altogether of detached buildings, none containing more than two or three wards, and many of them only one. Later, New York, at Ogdensburg, has built an excellent embodiment of this new ideal, somewhat modified to suit the climate of that locality. Still later, within a few years, Massachusetts, at Medfield, has practically duplicated the institution at Richmond, Indiana. In short, the tendency to the general adoption of the pavilion system is substantially confirmed.

Its superiority to older methods is shown mainly in the facility offered for indefinite expansion, the diminution of danger from fire, the possibilities for segregation of groups of inmates, the

openness to fresh air and sunshine, and the possible likeness of its parts to the home. The last advantage, however, is largely ideal; you may break, you may scatter the parts as you will, but the stamp of the institution will still hang around it.

As to relative disadvantages, experience has failed to demonstrate any of a serious or positive sort. It is true that each system has its special merits and in each the advantages gained are purchased at the cost of other special advantages which are sacrificed for their sake. Every building is a compromise in which the ideal is forced to give way to the practical and the actual. Houses, like men, have their necessary limitations. It has been claimed that the cost of detached buildings is greater than where the same interior space is concentrated in one. This proposition is without actual foundation; the system of construction bears no relation to *per capita* cost. The simple mechanical rules, that estimates should be based on the amount of material and labor, and that a square quadrangle has the most economic content, apply to hospitals as well as to other structures. Experience teaches that every needed accommodation may be secured at less cost *per capita* than has usually heretofore obtained under any system, by a careful avoidance of the unnecessary in detail and ornamentation, without losing the beauty which symmetry and adaptation to use will always give to any structure.

As to the general plan, it may be reasonably said that the best one is that which comes nearest to combining the merits of all systems, and by which may be secured the best adaptation of means and methods for the best care of each special class, giving to such as require it close and incessant supervision and control, in quarters adapted to them; to others the skillful and soothing care of the physician and nurse, in cheery infirmary rooms; to others the largest liberty to exercise their bents, usefully if possible, with no bars but those of moral force; to others the quickening spur of cheerful and amusing excitement; and to all, something as near like a home as circumstances may allow.

The architecture should be plain, but not meanly so. The State, or rather, the public, which pays, does not expect it and will severely criticise, if it be so.

Without regard to systems of construction, the consensus of skilled opinion at present indicates, as essential in every public

institution for the insane, for each sex, departments severally for the noisy and violent, the quiet non-workers, the suicidal and epileptic, the workers, and the sick and infirm. Opportunity for subclassification should be afforded by duplication of houses, wards, or whatever they may be.

No institution should be opened with less than sixteen divisions of its population—twenty if possible. The distressing conditions arising from defective opportunity for classification are often beyond description.

Many authorities advocate receiving departments to which all new patients may be assigned for temporary observation. The detention hospital of the large city is without question a useful and important element in the municipal equipment, but in an institution to which cases come only after a certain amount of investigation, in my judgment, all that is required in this direction is afforded by an examination room, from which the patient can be sent directly to the division to which he apparently belongs.

The assembly hall, for amusement, is as necessary as the dispensary, and affords pleasanter if not better medicine. There is no reason why this should not be detached; and it should be on the ground floor, for the convenience of the aged and infirm. The general kitchen, the laundry, the workshops, the store and the power house, containing boilers, light, heat and water apparatus, are best in detached buildings, each devoted to its special purpose, but may be connected by covered ways.

Ample provision should be made for the accommodation of employees, especially the nurses and attendants. It will help to soften the hardness of their work to be comfortable in their leisure hours. As to quarters for the officers, nothing needs to be said; they have always been fairly well cared for in that particular and are usually able to get what they want. The administrative officers are usually grouped together in the same building, centrally located. This arrangement greatly facilitates general direction, on the part of the superintendent, of every department, and is most important.

As has been already said, facilities for classification and subclassification, in separated groups, are most important; these should be limited mainly by the extent to which multiplication

of attendants can be afforded. In establishments where the patient pays for his care, segregation may be measured only by the length of the purse; but where the State pays, there must be a definite limit. In public hospitals, by common consent, subdivision does not go below groups requiring the service of at least two attendants. The ratio of attendants to patients in such institutions averages, in practice, one in twelve. This indicates that the average capacity of wards should be for twenty-four patients at least, and this in fact has been a practical standard. In recent years, however, especially where the house plan has been adopted and where all patients are under the eye of an attendant at night as well as during the day, certain classes are grouped in large numbers and houses containing one hundred or more are not uncommon.

Recurring to the primary classification before given, all things being considered, it is now very generally conceded by medical officers in American and foreign hospitals, that the various classes may be best grouped as follows:

1. *The Noisy and Violent, Disturbed and Disturbing.*—Quarters are provided for ten or twelve patients, with two day attendants, and one for the night, with single bed-rooms, a dining-room and scullery, day-room, bath-room, wardrobe, water-closet, etc., so arranged that attendants may be within convenient access to any patient at all times. A roomy loggia, wire-screened and glazed in winter, is an excellent accessory to wards for this class, affording a pleasant retreat in quiet moods from the restlessness of the sitting-room or the seclusion of the single room. An empty seclusion room is also desirable for occasional use in cases of extreme violence. This should have a pleasant but solitary outlook, for obvious reasons. Residence, in this department, is usually temporary, but wards devoted to this class of patients should have room for twenty per cent of the entire hospital capacity. They are best arranged on the horizontal house plan—that is to say, as a flat on a single floor.

2. *The Quiet Non-workers.*—Quarters are provided for twenty to forty patients, with two or three day attendants, and one for the night, well lighted, heated and ventilated, including a dining-room and scullery, a bath-room and wardrobe, a large day-room and one large dormitory, with a small number of single bed-

rooms, to be used for often needed isolation. This class includes demented, paralytics, feeble, non-suicidal melancholiacs, and very old persons. They require much personal attention and are little able to help themselves. For this reason, wards for this class should be on one floor. They should have capacity for 10 per cent of the total population.

3. *The Suicidal and Epileptic.*—The quarters should have a capacity for twenty to forty patients, with two day attendants, and one for the night, similar to those above described. The suicidal are rarely noisy; epileptics are violent only at times, but then often very much so. Both classes require constant watching, both day and night. To insure this, they must be congregated at all times. The advantages of the house plan with compact and all-including day-rooms and dormitories have been especially demonstrated in their application to the care of these classes. In this connection, I desire to note that the segregation of the epileptic insane in wards by themselves cannot properly be made to include all such cases. There are many who will be better assigned to other groups. Wards for this class should be on the ground floor, if possible, and should have a capacity for 15 per cent of the total.

4. *The Quiet Working Class.*—Pavilions of large size on the vertical house plan—with day apartments below and those for the night on the second floor—have been found to be particularly suitable, even with a capacity for one hundred or more. This class usually comprises half the population, is mainly composed of chronic cases, only liable to cause disturbance or to be violent at times. Such require only the control which a long accustomed regularity of life and discipline exercises; they need watching, however, to some extent, as do all the insane. The majority of such individuals do best when grouped in large families and kept occupied in some useful work, either indoors or elsewhere, outside on the farm, in the garden, the workshops, or in some of the domestic departments. All such may very properly go to a large common dining-room, and to a central bath-house. Pavilions for this class should each contain a large quadrangular day-room, a few small rooms for isolation, and the usual necessary accessory rooms, which should be of ample size and some of which may be better semi-detached, all below; and

a few single rooms and a large dormitory above. Such, containing as many as 80 beds, in Europe, and many but little smaller, in our own country, have been in very successful use for many years.

The relative cost of such structures is small. They may be provided to the extent of 50 per cent of the total capacity. The ratio of attendants may be properly 1 to 20.

5. *The Sick and Infirm.*—For these patients, who usually constitute about 12 per cent of the population, special provision should be and has been made in most recent construction. The science of to-day is no longer satisfied with mere comfortable housing, but demands that those suffering from physical disorders shall be, at least for the time, in the midst of sanitary environment, which shall offer no pregnable foothold to the prime causes of disease and in which the battle against them may have the best opportunity for success. It is true that all institution construction should embody the best sanitary principles, to the end that fresh air, sunlight and cleanness may be easily available, as safeguards to make every house a fortress against disease, but the infirmary should be a specially prepared arena with every advantage taken so that the conflict already in progress may be won, if possible, and the invading enemy destroyed on the spot.

An approved plan provides opportunity for subdivision and isolation of groups and individuals, with rooms varying in capacity from 1 to 6, so arranged that infectious cases of the same kind may be placed together either in single rooms or small wards, cut off from the central day and dining-rooms and from other apartments. Among these is a small ward of six beds for advanced tubercular cases not able to live out of doors. This has an open fire-place, special bath, lavatory, and offices adjoining, all floored with impervious vitrified tile, plastered with adamant, and ceiled with steel under concrete, both walls and ceiling being coated with enamel paint. A similar ward is destined for sick employees. Each is provided with an elevated veranda or covered balcony of ample size, having no outside entrance. From the central day-room extend symmetrically two short open corridors, each leading to groups of rooms with capacity for from one to four persons. There are also located the nurses' rooms, a surgery, a diet kitchen, the bath-room and

the wardrobe. The dining- and day-rooms are separated only by a massive chimney and metallic grilles, so that light and air have ready access from all sides. Two other corridors lead from the center, forming a Y to two groups of six single rooms each, intended for special isolation. In the Y mentioned, is a commodious sunny loggia, communicating with the day-room and adjacent closets, but without outside entrance. This is enclosed by a wire screen and is glazed in winter. There are nine entrances, two of them opening into partially closed courts on either side of the day-room, which are intended for the use of convalescents and the infirm in pleasant weather. The vestibules, loggia, surgery, bath-room, kitchen, closets and some of the isolation rooms, as well as the small wards before mentioned, are floored with tile, in most instances of the vitreous sort. Elsewhere, narrow, hard maple is used, and kept well varnished. All walls are of brick, plastered with adamant, all stairs of slate, and all ceilings of steel. The interior wood-work is of ash, perfectly plain. All inside surfaces are finished with enamel paint or varnish. The windows have a large area, high but narrow, some being protected by light wire screens, bent horizontally so as to form a shallow bay, permitting easy window cleaning without removal of the screen—others without any. External doors are made with heavy mullions and are glazed. Inside doors are of ash, with flush inside panels where any are required. Many are without panels so as to facilitate observation and reduce the sense of seclusion when closed. All doors are hung on plated, loose-jointed, wrought steel butts, and equipped with cylinder locks. Lighting is by incandescent electric lamps. All rooms have lamps which are controlled by flush lock switches, set in the door casing outside, so made that they cannot be detached or operated excepting by a special socket key. Heating is by indirect radiation, from individual pin radiators, in a clean basement, paved with cement. These are furnished with fresh air through large ducts of vitrified clay pipe, terminating outside at some distance in pedestals of brickwork, surmounted by iron inlets, six feet high, which in summer are used for flower vases. The inflow is controlled by dampers operated from above, inside the building. The roof is equipped with numerous large ventilators, provided also with dampers and capped with ham-

mered glass, to admit light. All flues are smoothly lined with fire-clay rectangular tubes of ample size, and are provided with lock registers for warm air and ventilation, set in the masonry, respectively 5 and 2 feet above the floor.

All pipe work is of iron, is exposed, and passes water-tight through special floor thimbles. The lavatories, bath, sinks, etc., are generally of heavy porcelain. All are trapped and all traps are ventilated above the highest roof. The tile floors of scullery closets and bath-rooms are equipped with tapped drains and may be flooded and flushed at will. All waste-pipes are trapped and vented externally, and those from sinks end in a large iron grease trap, to prevent clogging of drains with lime soap. Besides the usual fixed immersion tub, there is provided a portable bath and a needle and shower apparatus. The clothing and dust chutes are large tight cylinders of tank iron, safely vented through the roof and ending below, so that sterilization may be readily practised.

In addition to the quarters for nurses before mentioned, there is provision for a resident junior physician in the same building.

6. *The Neat, Quiet, Mutually Agreeable Class.*—This is made up of mental convalescents, permanently peculiar people, and others, who seemingly might be at home but yet cannot. For these there should be a special place in every institution. It may be a whole house detached, a flat or a ward, the first being the best. It should consist mainly of small rooms holding from one to two or three persons, with day-room, parlor, and the usual accessories, and demands a pleasant environment.

Patients of the third, fourth and sixth groups named may very advantageously use a common dining-room, having separate entrances for each sex. Practical experience has shown the benefit of this habitual meeting at meals in maintaining a higher standard of deportment, self-control and personal appearance, just as does the meeting for the dance or other general entertainment. The association in both cases is not intimate—one of sight only—and is surely to be commended. Proximity is not even desirable; a considerable walk under the sky, even a stormy one, is an acceptable episode in the dull monotony of the day, especially when the objective is a square meal, for which it certainly lends a zest. Fifty per cent of in-

mates may thus go, and in some institutions as many as 70 per cent are now doing so.

The superior economy of the common dining-hall is now beyond question. The same may be said of the common kitchen, even in institutions made up of detached and scattered houses, and, so far as I am advised, attempts to maintain an individual kitchen for each, with a view to helping out the semblance to the home, have been abandoned as failures in State establishments.

Houses or wards for patients of the first, second and fifth general classes should include separate dining-rooms, with proper accessories. A small gas kitchen, with from one to three burners, will be found to be a prime convenience in all wards, and is recommended if practicable.

So far, we have mainly considered arrangement of house space to suit various classes of patients, with but little reference to details of construction; these however, are worthy of some notice, in so far as it may be possible to point out some improvement in means to the end in view, namely, the better care of the insane. For brevity's sake, they will be stated aphoristically.

1. Every building or part thereof intended to accommodate patients should have a basement, high, dry, well lighted, ventilated, drained, if possible, and paved with cement, pipe trenches and other irregularities being avoided. It should not be used for miscellaneous storage.

2. Foundations should be of stone, or better, vitrified brick, laid in cement.

3. Outer walls should be of stone or brick, hollow if in a moist climate.

4. All main inner walls should be of brick, and thick enough to accommodate flue lining $4\frac{1}{2}$ inches thick without offsets or pilasters. Such linings may be procured of any necessary width so as to secure ample area of cross-section.

5. Partition walls should be of brick, and, if short, may be only nine inches thick, if of hollow brick and iron, the thickness may be only four inches.

6. Interior wall surfaces should be of face brick or hard plaster—adamant, Keene's cement, or other such material. Something can be saved by using common plaster on the upper half. When thoroughly dry and hardened, all inner walls should be

well painted, finishing with a gloss coat, plaster walls being first thoroughly sized and brick walls covered with a coat of thin size thickened with Portland cement.

7. A good institution floor is of narrow, hard maple, closely laid, on a cross layer of pine, 3 inches thick, with intervening layers of deafening felt, supported on beams of proper size and space, resting with obliquely cut ends in the masonry. This is what is called slow-burning construction. It has been largely used in the factories of New England and has greatly lessened the actual cost of mutual insurance in that region. Being solid, 4 inches thick, without air-spaces, rapid burning is impossible. The under surface, dressed directly, or faced with a thin layer of hard wood properly finished, affords a handsome ceiling, which cannot be damaged by water.

The cost of floors made of iron and brick will preclude their use in most structures for the purpose in question.

Where cost bars both of the above systems, ordinary joists carrying two or three inches of a weak concrete, made of lime, sand and cinders, on a false floor, overlaid with maple, and ceiled with steel, will give a very satisfactory result.

8. All interior woodwork should be quite plain, with flat surfaces and without sharp angles, as far as possible. Close doors are best when veneered on both sides, without panels, but such are expensive. If provided with panels for small rooms, these should be flush on the inner side.

9. The open-panel door which has been largely used in the hospitals of my own State for many years, has many advantages, and no faults have been noted in practice. It differs from an ordinary door only in the substitution of vertical spaces, 5 inches wide, for the panels above the lock rail. By it decided improvement in light, ventilation and heat is secured, observation is facilitated, and the sense of seclusion is minimized. It is particularly suited for small rooms, but may be used for any. If at any time needed, false panels may be temporarily or permanently screwed on.

10. Window-sashes of wood answer every purpose; such are rarely broken. A desirable size for the glass is $5\frac{1}{2} \times 10\frac{1}{2}$ inches, and inside glazing is very convenient for repairs, which are necessarily frequent. In all cases, bedding is essential. Window-sills

having a slope of 45 degrees are advantageous, in offering no foothold for climbing. Windows without guards may have stop-blocks to limit openings to $5\frac{1}{2}$ inches, where such are needed. If larger, passage is often practicable.

12. Cylinder locks should be used throughout—dead locks inside and latches for entrances—for the reason that they excel in durability, security and convenient smallness of keys. They are now made by several firms, the original patents having expired.

12. In rooms ten feet high, the floor space allotted to each patient should be at least, in single rooms, 75 square feet; in dormitories, 50 square feet; in day-rooms, 50 square feet; in dining-rooms, 10 square feet.

13. In summer, ventilation by windows is required in all climates, and in America even more than in Europe. On this account, the blocked window is often too close, and for this reason solely, a window-guard of some kind is often necessary, in order that the sash may be widely opened. In winter, natural ventilation being abandoned, inlet and outlet conduits are necessary. An average man inspires only 12 cubic feet of air per hour, but by transpiration through the lungs and skin, he vitiates 135 cubic feet, a total of 147 cubic feet. It may then be assumed that a supply of 150 cubic feet per hour will meet actual sanitary requirements, but in practice it is well to use 15 as a factor of safety and make it 2250 cubic feet. With a difference of 25 degrees between the internal and external air, a flue 20 feet high with 2 square inches area of cross-section will deliver more than 150 cubic feet of air per hour. With an area of 24 square inches, as given by a standard 4 x 8-inch flue lining, the delivery will approximate 5000 cubic feet per hour. For single closed rooms, this size should be the minimum. Under the conditions named, the air of a room 8 x 10 x 10 feet will be changed six times per hour, which will meet all requirements consistent with reasonable economy. It may be said, however, in this connection, that no system of flue ventilation will very successfully carry off a foul odor which is constantly emanating from a source in a room. For this, rude Boreas and a cleaner must be called in.

In the best construction, the air is heated by hooded radiators in basements before entrance into the flues, steam or hot water being used—in this country usually the former—(indirect radia-

tion). For certain places, for instance, dining-rooms or the assembly hall, direct radiation from pipes or coils in the place to be heated, may be used, this being much more economical. The former has the advantage of ventilating at the same time that it warms, and therefore is preferable for dormitories and day-rooms.

The average ratio of indirect radiation surface to space to be heated is 1:65; of direct, 1:150; but the amount of window surface and nature of exposure will require compensating consideration.

Open fires afford excellent means of ventilation and add much to the cheerfulness of an interior. They may be used in day-rooms generally if guarded, and in some places without guards.

14. In the matter of equipment, I offer a few dogmatic opinions, based on personal experience.

In general use, wooden furniture, substantially and specially made with tight joints, is better than that made of iron. Casters are undesirable. Bedsteads, especially, should be made so that all surfaces can be dusted and washed. An approved size is 3 feet by 6 feet 2 inches inside measure, for both employees and patients. A mattress of best long drawing curled hair (15 pounds) on a good wire mattress, with a pillow of soft South American hair (4 pounds) constitutes the basis of an ideal hospital bed. The first cost is large, but the mattress is everlasting and can be thoroughly cleaned and purified by being placed bodily in a rotary washer or sterilizer. No other mattress is sufficiently permeable for this process, but this one is in no way injured thereby, but, on the other hand, is improved in the matter of elasticity.

For infectious, infirmity cases, in rooms with impervious tile floors, the enameled iron bedsteads and other furniture may be preferred on account of special imperviousness and facility for disinfection.

For bed sore cases, the rubber air-mattress is a prime desideratum. They are now made of excellent quality and durable. Water beds are not commendable.

For day-room seats, individual chairs are preferable to settees and benches, for all classes, but a liberal allowance of smoothly upholstered lounges is desirable. For this purpose, pantasote,

an imitation of leather, is perhaps the best covering material, being smooth and impervious to moisture.

In the foregoing, I have considered the needs of the insane at large in the relation of domicile, in the light of most recent practice. There are certain classes, however, for which special provision is now and may be made with great advantage, to which brief notice may be properly given. In large institutions, already overcrowded, in which further architectural enlargement on original plans is undesirable, expansion by colonies in the near neighborhood has been proven in recent years to be a most excellent method of relieving engorgement and extending capacity. Usually, an ordinary improved farm has been bought or leased; the farm-house has been suitably modified and enlarged; a number of quiet workers have been selected to occupy it from the inmates of the parent institution, and in charge of a competent farmer and wife, with employed assistance, as far as may be necessary, the colony is established as a rural community, having little of the institutional aspect. Marked success has attended the experiments, particularly at Kalamazoo, Mich., and Utica, N. Y., and the reports relating thereto, full of interesting details, prove not only the excellence of this system of provision, but its relative economy, for the class to which it is applicable.

Another class which should, without question, be specially managed in the matter of residence, is the tuberculous. These individuals, now known to be peculiarly numerous among the insane, are a constant source of fatal infection, and in these days when the whole medical world has been aroused to efforts of public and private prevention in every way possible, it certainly behooves us, who have charge of all the insane of the land, to join in this general war against a fell disease. Nowhere are the opportunities so complete and available for the scientific control of its dissemination as in the institutions for the insane. In them, the difficulties and obstacles which bar the way of the public health officer and the legislator do not obtain; segregation may be enforced without objection, and every safeguard, not involving co-operation on the part of the patient, may be applied. Our duty is plain; there is nothing in the way of action and we should act promptly. Success which can be measured is sure to follow and an object-lesson will be furnished which will stand

before the eyes of the people in every part of the land and aid much to build up a public faith in the knowledge and judgment of the medical profession—a help indeed to those who are now struggling to secure a vantage ground on which to successfully fight tuberculosis.

For cases far advanced and only waiting for the end to come, isolated houses or wards are or should be provided, having a full measure of light, fresh air and comfort, and an equipment for a daily life apart from others, all as proof against infective absorption as possible, and in any case, easy of disinfection. In such abodes the last days may be spent advantageously to the patient, and with limited danger to others, especially the nurses.

For those in whom the disease is incipient or has not progressed so far as to disable them from locomotion, the ideal home is a well-equipped camp, agreeably located, with plenty of sunshine and some shade, pure water, a picturesque environment, facilities for occupation and exercise, and no house other than a tent, to be closed only when necessary for protection against inclement weather. According to most authorities, under such conditions, the expectorated bacillus tends to die promptly; fresh air and sunshine are its normal enemies. That they are the helping friend of the sick man, improving his nutrition and powers of resistance, we must all agree. In short, whatever else is done, mere life in the open air promises much good in itself, not only for the patient, but as a means of reducing the volume, potency and dissemination of the morbid cause.

Approximations to this ideal have been in successful operation for years at various health resorts. Life in tents can be made agreeable in all seasons of the year, anywhere in the temperate zone. Even in the coldest weather, plenty of clothing and a stove will secure comfort. For several years past, I am advised, tent wards have been in use, for eight months of each year, at the State Hospital for the Insane near Providence, Rhode Island, with satisfactory results. The tent sanatorium, in some form, may properly be a part of every public hospital for the insane and be in operation at least during the warm months, if not all the year round. For the tuberculous, its advantages are patent, but its uses need not be confined to this class. In tent quarters, apart from the infected, selected detachments from the entire

population of an institution may advantageously and very agreeably enjoy temporary vacations, following each other *seriatim*, until as many as are fit have enjoyed the privilege of a modicum of open-air life.

Having now presented a brief review of the major changes which have been developed in the provision of homes for the insane during the century behind us, I conclude with the hope that you may not deem it too much a twice-told tale and that it may prove of some use, somehow, to somebody.



A REVIEW OF CHRONIC PROGRESSIVE CHOREA (HUNTINGTON'S), WITH REPORT OF A CASE.

By CLARENCE A. GOOD, M. D.,

Northern Michigan Asylum.

(From the Pathological Department of the Michigan State Asylums for
the Insane.)

The literature of chronic progressive chorea dates back to 1842, when Dr. C. O. Waters, of Franklin, N. Y., in a letter to Dr. Dunglison, described a peculiar form of chorea infesting certain families of that locality. Dr. Waters characterized this disease as peculiar in four ways: 1. In being markedly hereditary; 2. Rarely appearing before adult life, or after 45; 3. It was incurable; 4. It always induced dementia. The disease was known among the common people as "megrimms." Dunglison inserted the letter in his Third Edition, with the remark that he had never seen the disease. Dunglison also states that attention was called to a similar disease by Dr. Charles Gorman, of Luzerne, Pa., in his inaugural address before the faculty of the Jefferson Medical College.

Dr. Irving M. Lyon (1) in 1863 next gave a description of the disease. He noted its heredity and that it only occurred in certain families. He does not note any mental affection as occurring with it, and in several instances states that it began in early childhood. He reports two cases in which three generations were affected and one in which four generations were affected. One brother of this last case, who was not himself affected, had two children "in whom well-defined chorea had existed for years."

Huntington (2), in 1872, in a postscript to an article on chorea minor, gave an admirable description of hereditary chorea. This article caused considerable interest to be taken in the disease, and since this time it has been quite generally known as Hunt-

ington's Chorea. Huntington's father and grandfather had practiced medicine in the eastern end of Long Island for seventy-eight years and had been acquainted with certain families in which chorea had existed for generations. Huntington believed that the disease was peculiar to Long Island. He noted that the disease affected males more than females; that it came on gradually, always after middle life, and was incurable; and that it was usually accompanied by insanity and a tendency to suicide. He also adds that if one of the family escape the disease his descendants are ever after free.

Ewald (3) described two cases in different families. The disease was hereditary, but in neither case was the mind affected. Clarence King (4) reported a family history in which the grandfather was choreic. Of his ten children four had chorea. Three of these had children who also had chorea. The fourth had nine children, one of whom was affected, and of the five children of this latter all developed chorea—making in all four generations with nine known individuals affected.

Dr. S. C. Stevens, in a paper before the South Carolina Medical Association, reported two brothers, one eleven, the other twelve years old, one of whom had been choreic since birth, the other developing the disease during his first year. They belonged to a family in which hereditary chorea had existed for several generations.

Peretti (5) reports a most interesting family. Frau N., who was choreic, had four children, two of whom were diseased. Of the fifteen children of these two, nine had chorea and four others had nervous affections. Of these nine, one had four healthy children over thirty years old, and three of these had healthy children; four others had children among whom there were three affected, one at the early age of twenty-three. He noted insanity as occurring four times.

Huber (6) reports a case beginning at the age of thirty. This man's sister at 42 was choreic and demented; his father was choreic and insane, and his father's sister was choreic. Autopsy revealed a cerebral pachymeningitis.

West (7) reported a family in which three generations were affected, and Zacher (8) describes a case in whose family four generations were affected.

Hoffman (9) reports some cases among whom one became affected at the early age of ten years. He also has called attention to the similarity existing between general paralysis of the insane and Huntington's chorea.

Macleod (10) reported two sisters who were choreic and insane. Two brothers are said to be choreic, as is also the father. The pathology of these cases is peculiar and will be described later.

Lannois' (11) article gives an excellent description of six cases he has had occurring in a family in which four generations were affected. He also gives a complete review of the subject and literature up to date.

Suckling (12) reports a case in a man coming on at the age of thirty-five years. He had been previously healthy. The choreic movements were general. There was a "sniffing" due to involvement of the diaphragm. Speech and knee-jerk were normal. The man's mother died choreic and helpless at the age of fifty-six. Had been choreic for sixteen years. Suckling also saw a sister of the man, who, at thirty-eight, had been affected for five years. This woman's daughter, age twelve, was also affected with the disease.

Diller (13) reports seven cases from the State Hospital for the Insane at Dansville, Pa.

CASE I was 62 years of age; had been choreic for two years; choreic movements general; cease during sleep; mentally, patient was irritable and childish. For a short time previous to his death the movements became less frequent and intense on right side. Autopsy revealed under the dura of vertex and sides of left hemisphere a cyst lined "with a thick and dark-colored false membrane," which extended over the posterior part of the frontal and the whole of the parietal lobes. The convolutions under the growth were depressed and flattened. Large gliomatous bodies were found on the choroid plexuses.

CASE II. Widow, age 72; sister of previous patient; choreic for two years; movements general and cease during sleep; great mental stupor; paralysis of both legs. The autopsy revealed several tumors in the dura mater; the largest the size of a chestnut. These tumors produced distinct depressions at the roots of the first and second frontal convolutions and upper parts of the ascending frontal and ascending parietal convolutions. They

caused a thinning but not a destruction of the underlying cortex. The tumors were of a hard, scirrhus nature. The arteries were atheromatous.

On considering the lack of family history, the age at which the disease began, the length of time it existed before causing death, and the paralysis existing in one case, I think there is considerable doubt whether these are really cases of Huntington's chorea. Their pathology is also peculiar, and I believe them to be cases of chronic chorea due to cortical lesions and to resemble athetosis and post-paralytic chorea.

Diller also reports four other cases, in all of whom there was a family history of the disease. In one instance eleven undoubted cases occurred in three generations.

Herringham (14) in 1889 wrote an article on "Chronic Hereditary Chorea," reviewing the literature up to date. In the same year he also wrote on the "Chorea of the Adult and of the Old." In this he makes four divisions of chronic chorea of adults: 1. Chorea like Sydenham's; 2. Chorea from sub-cortical lesions, the pathology usually consisting of a patch of softening either pressing on the posterior part of the internal capsule behind the motor tract, as in a case reported by Charcot, or in front of the motor tract, as in Gee's case; or again, of a patch of softening entirely within the optic thalamus, as in the case of Gowers and the case of Galvagni; 3. Hereditary chorea (Huntington's) accompanied by dementia; 4. Chorea differing from the first in being chronic and from the second in the lesion being cortical, and from the third in lacking the element of heredity. In these cases there have been found pachymeningitis, leptomeningitis, subarachnoid hæmorrhages, subdural cysts over motor area, etc.

Bower (15) reports three cases. Case I was in a negro. The disease began at thirty. He had been a hard drinker and had a history of paraplegia at 28, lasting three months. His movements were characteristic. His speech was slow and hesitating. This patient's mother and her two sisters had chorea. Case II had all the characteristics of the disease excepting the lack of a history of heredity and the mental disturbance. Disease began at 29. Case III became choreic at 36. His father was choreic, and his baby, four months old, has constant twitchings of the hands.

Hay (16) reports eight cases from the asylum at Morris Plains, N. J. All had a family history of the disease. In one case choreic movements did not begin until her sixtieth year. The daughter of one of his cases became choreic before the age of 20.

Sinkler (17) reports three cases with one autopsy. His findings will be noted later. He reached the following conclusions: 1. The disease is markedly hereditary, but a few characteristic cases lack this heredity; 2. Most cases begin between the ages of 35 and 50 years; 3. Mental disease occurs in most cases and may precede or follow the choreic movements.

Dercum, in 1892, wrote a review of Huntington's chorea. In his *Text-Book of Nervous Diseases* he gives an excellent description of the disease with numerous references. He also pictures one of his cases.

Reynolds (18) reports two cases. Case I became affected at the age of 30. Both maternal and both paternal grandparents, his mother and his sister, were choreic. The muscles of the head, face and neck were most affected. Case II became choreic at 53. Movements began shortly after patient sustained a fall, striking on his head. His father became choreic at 60 and died one year later.

Phelps (19) reports thirteen cases which he has collected from various asylums. Many of these presented the characteristic symptoms of hereditary chorea, yet did not have a history of heredity. He calls special attention to this fact. He also calls attention to the similarity existing between hereditary chorea and general paralysis, the points in common being thus summarized: 1. Begins in adult life. 2. Mental change is essentially a dementia. Many of the choreics are irritable and violent and possess exaggerated ideas. 3. Motor appearances; toward the last the facial sluggishness, the clumsy use of face and hands, feet and tongue, and the general physical and mental helplessness presenting almost the same clinical appearances. 4. Duration in chorea two or three times as long as in paresis, yet the more gradual mental and physical invasion might account for the lack of so pronounced an excited stage. 5. The progressive and uniformly fatal character of the disease.

Gray (20), in the second edition of his *Text-Book on Nervous Diseases*, gives and pictures a case of his which he considers one of congenital Huntington's chorea.

Osler (21), in an article on the Varieties of Chronic Chorea, reports two cases which he has had. In both there was a marked family history of the disease. He secured an autopsy on one case, and his finding will be noted later. Osler makes the following divisions of chronic chorea: 1. Chorea of infants. Begins at birth or during second or third years of life. In this are found four classes: (a) spastic diplegia with choreiform, tremulous or athetoid movements; (b) spastic paraplegia with choreiform and athetoid movements; (c) chronic chorea; (d) chronic progressive chorea with dementia. 2. Chronic progressive chorea without any hereditary anlage. He states that this may begin in childhood, adolescence, maturity or old age. 3. Chronic hereditary chorea, Huntington's. 4. Cases of chorea minor that persist for months or years but finally recover.

Dana (22) reports a most interesting case and describes in detail the microscopical findings in the brain. This part of his paper will be referred to later. John C. was 37 at the time of his death. He had been affected for four years. The disease began without any exciting cause, first appearing as a slight disturbance in articulation. As the disease progressed the head, arms and legs became affected. His gait was of the loping or high-stepping variety. Shortly after the disturbance of speech began his mind became affected. He was easily excited and irritable. His memory failed and he became unable to do his ordinary work, which was that of a peddler. There was no nystagmus, no paralysis or atrophies, no pains or anæsthesias, and no trophic disturbance of the skin. Lungs, heart, kidneys and digestive tract were normal. About a year and a half before his death the patient was trephined by Dr. Dana. For six months after the operation he was better, but then relapsed into his former condition. He died of typhoid fever in the fourth year of the disease.

This patient's great-great-grandmother, his great-grandmother, his grandmother and his mother were choreic, his mother developing the disease at 30 and dying at 40.

We may now enter into a description of the disease. Hereditary chorea, as the name implies, is essentially a hereditary disease, the same form of disease having existed in the parents,

grandparents, etc. The disease may be transmitted through the female, as in Dana's case, or through the male, as in Huber's case, probably most frequently through the female. Huntington noted as early as 1872 that if the chain was once broken and any member escaped, his descendants were ever after free from the disease. This fact has been corroborated by numerous observers since his time. Lyon, however, reports an exception to this general rule.

The disease usually begins in adult life, the majority of the cases occurring after 35. Yet, as we have seen, Hoffman reports a case at 10, Hay at 20, Suckling at 12, and Gray and Stevens have each reported a congenital case. Huet (23) in 1889 collected 67 cases, the age of the onset being as follows:

10 years,	1	35 to 40 years,	13
10 to 15 years,	1	40 to 45 years,	11
15 to 20 years,	2	45 to 50 years,	7
20 to 25 years,	1	50 to 55 years,	8
25 to 30 years,	5	60 to 65 years,	1
30 to 35 years,	16	65 to 70 years,	1

As many males as females are affected. The disease develops insidiously and without any known cause by twitchings in the face (King, Huber), difficulty in articulation (Dana), spreading thence to arms and legs, or is general from the outset (Hoffman). The choreic movements are never localized, after the disease has progressed for any length of time. The movements are more extreme, coarse and non-rhythmical than in either Sydenham's chorea or in athetosis.

These movements are at first partially under the control of the will, but this is soon lost. They are always more violent when the patient is talking or is watched, and always cease during sleep. Fatigue is never complained of.

Speech is invariably involved quite early in the disease, sometimes being thick, or again the words being indistinctly or hesitatingly pronounced. Deglutition becomes difficult, especially in the later stages. The gait is usually described as of the loping or dancing variety; that is, the patient takes a few long steps naturally, then makes a long step with one leg, bringing up the other quickly to it, then making one or two hops. In many of the cases, however, the gait is simply awkward and uncertain.

In chronic progressive chorea there is no wasting of muscles other than that occurring in the general emaciation. There is no anæsthesia, and the reflexes are normal or slightly exaggerated, as in Osler's case. The reaction of the muscles and nerves to electricity remains normal. The bodily functions are carried on normally, so that for several years, or until the mental enfeeblement has considerably progressed, the patients are able to be about and to perform their duties. The acts of defecation and micturition, as long as the mind is not enfeebled, are properly performed and the sexual functions remain normal; in fact, many of the women are especially prolific. Sooner or later in the progress of the disease the mind becomes affected. This is noted by practically all writers on hereditary chorea. Clarke (29) reports a family history in which in three generations, out of fourteen individuals five had chorea and eight were insane and had been in asylums. The mental affection may develop synchronously, and may precede or may follow the choreic movements. In the great majority mental changes are noted at the time of the beginning of the twitchings, or shortly thereafter. The most common and characteristic form of mental change is a gradually progressing dementia. This is often accompanied by a distinct depression. Gray, among others, is inclined to think this depression is due to the fact that the disease is known to be hereditary and fatal in the families affected. In some cases there is a distinct suicidal tendency. While the common mental alienation is a dementia, many of the cases are excitable, irritable, and subject to violent outbursts of anger. This was especially noted by Dana and Diller. Accompanying this mental enfeeblement there are often delusions of persecution or of grandeur. Although the majority suffer from dementia, there are cases that retain their mental capacities till the end. Sinkler has called special attention to this fact. As the disease progresses the movements become more violent and less under the control of the will, until the patient is unable to stand alone or to feed himself; the dementia progresses and becomes absolute and the patient is confined to his bed, and finally dies of exhaustion. The disease is very chronic, in many cases lasting 10, 15 and even 20 years.

In the literature the pathology of Huntington's chorea is not considered nearly as fully as the history and clinical considera-

tions; in fact, the number of recorded autopsies are few indeed and the recent text-books have nothing definite concerning the pathology.

Huber has recorded a cerebral pachymeningitis. Macleod, in one case, found pachymeningitis and a hæmatoma of the left hemisphere involving most of the parietal and the posterior part of the frontal lobes. In another case he found several tumors in the dura covering the left hemisphere, particularly over the motor region, and atheroma of the vessels. In still another case he found hæmatoma of both hemispheres involving the parietal and posterior parts of the frontal lobes. There were also gliomatous bodies in the choroid plexuses. Herringhan, in speaking of these cases, says they are exceptional in many ways and the family history is insufficient. I do not think there is any doubt but that they belong, along with Diller's two cases, to a class of chronic chorea due to gross cortical and subcortical lesions.

Berkley (24) reports the case of a woman who became choreic at the age of 35, five hours after being severely frightened by a murder committed before her. She became demented and died at 41. Examination showed "dilatation and thickening of arterioles; small gangrenous spots around many vessels; amyloid corpuscles in the lymph sheaths; vacuoles in the white and gray matter; varicosities of sheaths of Schwann and absence of axis-cylinders in the nerve fibres; and complete pigmentary degeneration of the cortical and ganglionic cells, with loss of prolongations." Although this case is often given under hereditary chorea, I think it may reasonably be considered a doubtful case.

Dercum found in the spinal cord of a case he examined "an increase of the connective tissue in the white matter with a thickening of the vessels. The region of the central canal was occupied by a mass of nuclear tissue much more abundant than in normal cords."

Greppin (25) reports a case of a man who became choreic at 50 and died demented. In his family there was a history of "chorea, insanity, brain and spinal disease." The autopsy showed pachymeningitis, leptomeningitis and flattening of the convolutions of the brain. Throughout the gray and white matter he found "accumulations of cellular elements, with not

much developed membrane composed of granular nuclei, so that here and there the ganglion cells and nerve tubes were completely obliterated by them. In some places the cells had degenerated and left a deformed mass." Osler found in his case turbidity of the arachnoid with considerable serous exudate separating the arachnoid from the pia. The arteries at the base were a little stiff. There was a general wasting of the convolutions, which also on section were rather firm. Microscopical examination revealed thickening and hyaline degeneration of the vessels and fatty changes in the arterioles. The perivascular spaces were enlarged and contained leucocytes. The ganglion cells showed slight changes, these not being more severe than a chronic dementia. The pons and cord were practically normal.

In conclusion, Osler expresses the opinion that the morbid anatomy of chronic chorea is a neuro-degenerative disorder—diffuse changes in vascular, ganglionic and neuroglial tissues not essentially different from, though less pronounced, than those of paralytic dementia. Sinkler, in an autopsy made by him, found the dura adherent and thickened; the meninges congested and considerable œdema. In the cord he found an increase of the connective tissue in the white matter except in the posterior columns, which were normal. The axis-cylinders were lessened, but never enough to completely cut off the tract. The region of the central canal was occupied by a mass of cells like those found in normal cords, but the mass was much larger and stained more deeply.

Dana made an autopsy in a case which died of an intercurrent affection (typhoid fever) in the fourth year of the disease. His findings were as follows: The intestines showed the lesions of typhoid fever; the heart was small; the wall of the right ventricle thin and the muscle pale; lungs, spleen and liver practically normal.

The dura was found thickened and adherent; brain itself was congested; not much œdema. The brain was hardened in Müller's fluid. An examination of the surface of the brain showed an absence of the superior pli-de-passage on one side, also an interrupted fissure of Rolando. Dana made many measurements of the thickness of the cortex. He found it almost universally atrophic, but most reduced in the motor region.

Microscopical examination revealed abnormal changes only in the central and, to a less extent, in the frontal convolutions. These showed a decided thinning of the gray matter, but no particular meningitis. The vessels were slightly thickened. Some sections showed few changes, but others revealed extensive degeneration, atrophy and even disappearance of the ganglion cells, more especially of the angular and small pyramidal layers. In certain regions nearly every pyramidal cell had from one to three small scavenger cells in the pericellular space apparently fixed to the cell. Occasionally a high degree of vascularity of the parts was observed. Dana does not consider the process in any sense inflammatory, but considers that it belongs to teratology and is an innate defect in cell structure. Dercum, in his text-book, also advances this idea.

Facklan (26) reported eight cases with one autopsy. He sums up the pathology of his case as follows: It seemed to be an inflammation of the membranes starting about the blood-vessels and extending into the cortex and characterized by proliferation of the perivascular connective tissue and slight hæmorrhages. The lesion is essentially a chronic hæmorrhagic meningoencephalitis with consequent atrophy of the cortex. He also noted marked proliferation of the muscle nuclei, probably a functional result.

Oppenheim (27), in two cases, found the gyri narrowed and the sulci broadened in the motor, parietal and occipital regions. In these regions there were hæmorrhagic infiltrations in the subcortical layer. In the cortex the small round cells next below the cortex were reduced in number. The pyramidal cells were normal. Oppenheim considers the essential pathology to be miliary encephalitis, cortical and subcortical, followed by atrophy of the cortex. Both of his cases died of infectious diseases—one of influenza.

Kronthal and Kalischer (28) examined three cases, and conclude that the pathology consists of diffuse, rarely circumscribed changes in the cortex. These are diseases of vessel walls, increase of nuclei, cell accumulations, small hæmorrhages and increase of the interstitial framework. The nervous elements are only slightly affected.

Clarke (29) examined two cases and thus summarized his find-

ings: "The morbid change consists of a widespread but partial degeneration of the cells of the cerebral cortex, especially the cells of the second and third layer, most marked in the frontal and motor convolutions, together with an increased amount of interstitial tissue and number of neuroglia cells."

I will now describe a case which occurred in the Northern Michigan Asylum at Traverse City.

B. E. B. was admitted into the Michigan Asylum at Kalamazoo in April, 1892. He was 45 years of age, married, lawyer with collegiate education. The history which accompanied this patient states that his parents were natives of New York. No history of insanity or chorea was obtained. Ten years prior to his admission he developed chorea and mental failure, the latter being noticed particularly in his silly expressions in the court room. His mind steadily but gradually failed and he was unable to earn a competence. For five years he was supported by his wife, but she finally deserted him and he then acted as a chore boy in a barn. Upon the death of his employer he began to wander about the country, and was committed to the asylum. At the time of his admission he was fairly well nourished. The choreic movements were pronounced, being more marked in right arm and leg. He did not realize the change in his manner of living, and seemed pleased with the prospect of asylum life. He was still able to read and enjoy games. He was sociable and kind. His general demeanor was one of simplicity. He was transferred to the Northern Michigan Asylum in 1896. After his admission his mind gradually became feebler and his choreic movements more marked. His eyes would roll in their sockets, his brow wrinkle and his tongue protrude; his head would be turned and twisted and his legs and arms go through strange and varied contortions. These, coupled with his queer grimaces, made him a sight to rivet the attention of one not accustomed to see him. In September, 1898, his movements became so violent he could no longer walk nor feed himself, and he had to be put to bed. His movements were much more severe when he attempted to talk or when he was watched. The knee-jerk was normal. Cutaneous sensibility remained normal as long as patient's mind was not so much enfeebled as to make the examination unsatisfactory. He became feebler, deglutition became

very difficult, and he finally died of exhaustion December 17, 1898. Autopsy four hours after death. *Protocol:* Body of a man of medium height and rather slight frame. Marked emaciation. No trophic sores. No rigor mortis, neither was this present at any time later. No localized atrophies.

Cranium: Calvarium thick and heavy, there being practically no diploë. Dura thickened and very adherent to skull-cap, rendering its removal difficult. When the dura was removed the brain and membranes presented the appearance ordinarily presented in general paralysis, viz., the arachnoid was thickened and milky; in the pia, which was thickened, there were white streaks following the course of the blood-vessels, and the arachnoid was universally flooded up from the pia by a syrupy, straw-colored fluid. This fluid was in abundance. The vessels were moderately dilated. Pacchionian bodies large. The base of the brain appeared normal. Slight atheroma of vessels. The pia was not adherent to the cortex. The brain at a glance was seen to be atrophic, the gyri small, the sulci wide and gaping. The weight of the brain with the pia was 33.5 oz. The convolutions in the motor and frontal regions seemed most atrophic. Ventricles were moderately dilated. Ependyma normal. A careful study of the surface of the brain revealed no abnormality in the arrangement of the fissures. The medulla and pons appeared normal on cross section, as did the cord, except that in the lower cervical region the gray matter appeared bloody.

Several posterior root ganglia, sections of the sciatic nerves and parts of the following muscles, viz., intrinsic muscles of the foot, intercostals and pectoralis major, were removed.

The lungs were normal. The heart was small with evidences of old pericarditis. Ventricular walls thin, valves normal. The liver was small, dark-colored, and firm on section. Blood content increased. Small cyst under capsule on convex surface. Spleen small and firm. The kidneys were small, and both were lobulated. On section the cortex and medulla presented no marked abnormal appearances. The stomach and intestines were normal. Testes atrophic; neither epididymis showed any thickenings.

The tissues were treated as follows: Thin slices from various regions of the brain were placed in a one per cent solution of

osmic acid for 24 hours and after-hardened in alcohol; others were placed in absolute alcohol, and still others were hardened in successive grades of alcohol; but by far the greater part of the brain, together with the pons, medulla, cord, nerves, muscles, thoracic and abdominal organs, were preserved in Müller's fluid. Some of the posterior root ganglia were preserved in alcohol, while others were treated with osmic acid. Bits of the muscles were treated according to Ranvier's gold-chloride method to show the nerve terminations in the voluntary muscles.

After the brain had been in Müller's fluid long enough to become quite firm and to differentiate clearly the white from the gray substance, about one hundred measurements were made of the cortex, always at the convexity of the convolutions. The following table, which is in millimeters, will show the averages, and will compare these with the measurements of the normal cortex.

	This case.	Normal.
Frontal	2.71	3.1
Motor convolutions	2.49	2.75 to 3
Temporal	2.8	3.1
Occipital	2.4	2.5 to 2.6

The following stains were used: For the study of the cortical cells and cortical structures Nissl's, osmic acid, hæmatoxylin and Van Gieson's. The basal ganglia were also stained with these stains. For the study of the peripheral nerves, cord, medulla, pons, and conduction paths of the brain, Van Gieson's and Weigert's methods were used; for the study of the posterior root ganglia, osmic acid and Nissl's; for the study of the muscles, hæmatoxylin and eosin and the gold-chloride method; and for the thoracic and abdominal organs, Van Gieson's.

By the use of Ranvier's gold-chloride method I was able to demonstrate several nerve terminations in the intrinsic muscles of the foot, and so far as I could determine they were normal. The muscles in various places showed degenerative changes. The cells are of irregular sizes, some being swollen and vacuolated, while others are small. Others again are more or less broken up and finely granular, and the striations are lost. Some cells take the eosin stain normally, others stain very poorly, while still others

take the stain deeply and have a decided bluish cast. These latter cells appear homogeneous and waxy (Fig. 1). Sections of the lungs, heart, liver, spleen and kidneys, presented no marked pathological changes. With Weigert's method I could demonstrate no degenerations of the peripheral nerves. The cells of the posterior root ganglia were of normal number and size, but nearly all of them contained an enormous amount of large pigment granules heaped up within the cells, sometimes surrounding the nucleus, at other times occupying one side of the cell, but rarely distributed throughout the cell. This pigment appeared yellow unstained, and took osmic acid black (Fig. 2).

The spinal cord shows throughout an enormous number of corpora amylacea. These are found throughout the white and gray substance, being more numerous in the white substance. One anterior horn is larger throughout the whole length of the cord than the other. Nissl's stain does not show any particular changes in the cells of the cord. In the lower cervical regions there are a few capillary hæmorrhages into the gray matter. Weigert's method shows that there is no system degeneration, though there is a material lessening of the axis-cylinders in the region occupied by the direct pyramidal tracts, but in no sense being sufficient to cut off the tract. Throughout the medulla, pons and midbrain there are no appreciable changes.

Marked pathological changes were found in the cerebral cortex. In the left post-central convolution about in the region occupied by the arm center, 6 or 8 small cysts were found. These varied in size from $\frac{1}{4}$ to $\frac{3}{4}$ mm. in diameter, and were situated either just beneath the pia or in the region occupied by the pyramidal cells. The cysts did not possess a lining membrane and the walls are smooth and regular. The ganglion cells extend directly to the edge of the cysts, which are probably to be regarded as greatly dilated lymph spaces (Fig. 3). Throughout the motor regions there existed most extensive cell degeneration. With the osmic acid method many of the cells of the molecular layer and the layer of small pyramidal cells are filled with large and small granules, stained black. In some places the cell has completely disintegrated, and in its place is found a mass of granules which stain black and perhaps one or two scavenger cells. With this method the walls of the smaller vessels are also

seen to be undergoing fatty degeneration. With Nissl's stain the cellular degeneration is well brought out. The cells of the small pyramidal layer are mostly affected, although many of the large pyramidal cells are degenerated. In some fields there is hardly to be seen a normal looking cell, many being extensively vacuolated and the most of them taking the stain diffusely. The processes of many of the cells are shrunken and irregular. Some cells are completely broken down, leaving only a mass of granular debris, while in others the cell form is retained, but the nucleus has disappeared. In many of the pericellular spaces from 2 to 6 scavenger cells fixed apparently directly to the ganglion cells and often making a distinct depression in its side, can be seen. In some fields many of the cells have disappeared, leaving small, clear spaces, which give a reticulated appearance to the specimen. The number of glia cells in the outer layer of the cortex is considerably increased. These changes are distributed quite generally throughout the motor region, yet areas are found where the cells are tolerably well preserved. Changes similar to the above, though less severe, are found throughout the whole cortex, the frontal lobes suffering most severely next to the motor regions.

The vessels quite generally throughout the brain are dilated and filled with blood, but there are no extravasations. In places the cells of the vessel walls have begun to proliferate, but this change is not at all marked. The connective tissue throughout the brain is only slightly increased. In the white substance of the brain, in the basal ganglia, and in the cerebellum, I could find no appreciable changes.

A careful examination of the entire nervous system of this patient does not show any evidences of a primary inflammation, or involvement, primarily, of the supporting framework of the system. On the other hand, there existed throughout the cortex overwhelming evidences of the involvement of the ganglion cells most marked in the motor and frontal regions. This degeneration may affect the motor regions primarily, but I suspect that it also involves other parts, as the early and progressive dementia would indicate. Certainly in the later stages there is an involvement of other parts of the cortex than the motor areas. This

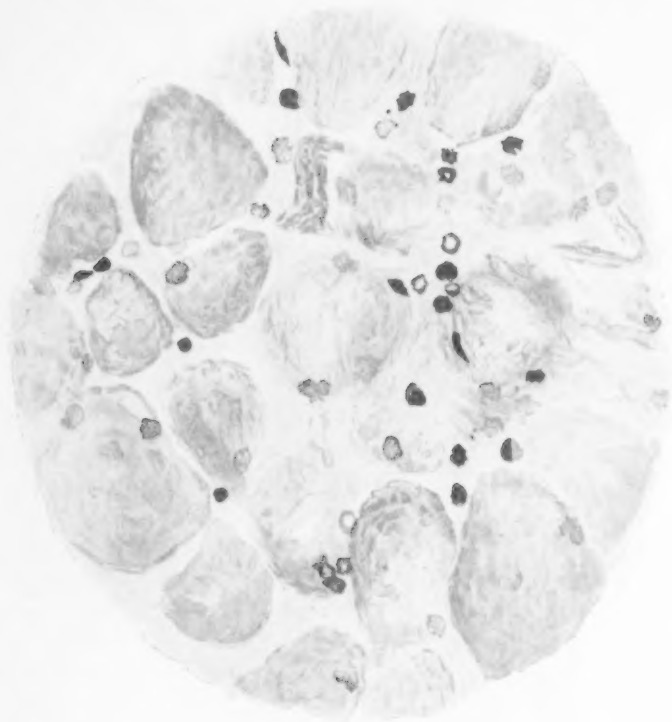


FIG. 1.

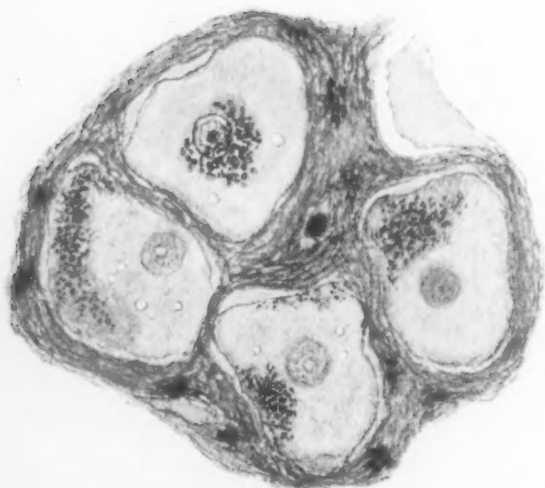


FIG. 2.

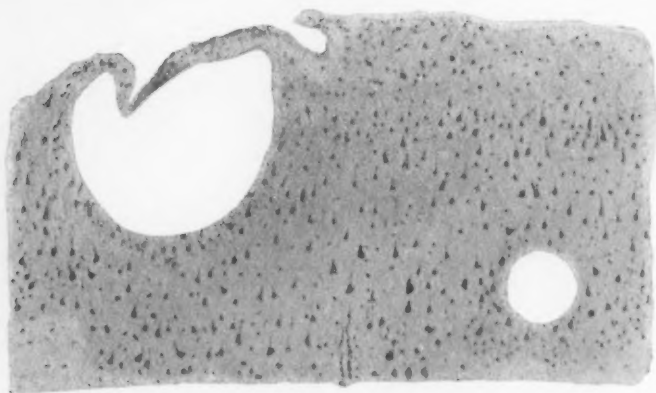


FIG. 3.

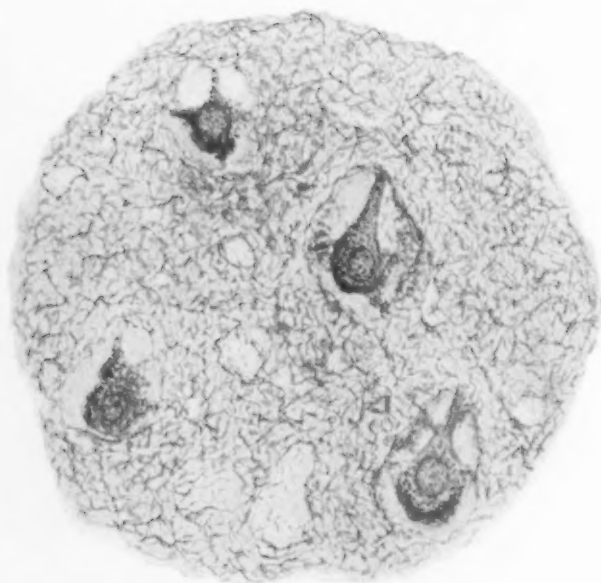


FIG. 4.

cell degeneration is of the common form and gives rise in its progress to fatty changes and fat granules.

DESCRIPTION OF FIGURES.

Fig. 1 is a drawing from a cross section of one of the intrinsic muscles of the foot, stained in hæmatoxylin and eosin. In the center of the figure several fibers are seen which take the stain very poorly and whose outline it is difficult to make out. To the right of the center is seen a fiber whose protoplasm is finely granular, and which contains in its center two large vacuoles. In the upper part of the figure are seen two S-shaped fibers, one taking the stain deeply and the other faintly; their protoplasm is finely granular. In sections cut lengthwise to these fibers they showed an entire absence of striations. In the upper left part of the figure is seen a large fiber whose protoplasm appears homogeneous and takes the stain deeply. Between the degenerated fibers the nuclei of the connective tissue are considerably increased.

Fig. 2 represents four cells from a posterior root ganglion treated with osmic acid. Heaped up within the cell is seen a large amount of coarse black granules. Some of the cells contained small vacuoles, and in one the nucleus is situated at the periphery of the cell.

Fig. 3 is a drawing from a section of the left post-central gyrus stained in a concentrated watery solution of Fuchsin. It shows two of the cysts found in that region.

Fig. 4 is a drawing of a section from the left post-central gyrus treated with osmic acid. It shows four cells, each containing a large amount of pigment granules which stain black. These granules can also be seen in the pericellular spaces. Near the bottom is a space from which the cell has disappeared.

REFERENCES.

1. Am. M. Times, N. Y., Dec. 19, 1863.
2. Med. and Surg. Reporter, Apr. 13, 1872. Quoted by Sinkler in Pepper's System, vol. V, 440.
3. Ztschr. f. klin. Med., 1884, VII, Suppl. H, 51.
4. N. York M. J., Apr., 1885, vol. XLI, 468.
5. Berl. klin. Woch., 1885, No. 52.

6. Virch. Arch., CVIII, 1887, 267.
7. Brit. M. J., Lond., 1887, 425.
8. Neurolog. Centralblatt, 1888, 34.
9. Virch. Arch., 1888, 513.
10. Jour. Ment. Sci., Lond., XXVIII, 1882, 194.
11. Rev. de Med., VII, 1888, 645.
12. Quoted in Practitioner, Nov., 1889, from Birmingham Med. Review, Sept., 1889.
13. Am. J. M. Sc., Phila., XCVIII, 585.
14. Brain, Lond., II, 415 and 134.
15. J. Nerv. and Ment. Dis., March, 1890.
16. Univ. Med. Mag., June, 1890.
17. Med. Rec., N. Y., March 12, 1892.
18. Med. Chron., Manchester, 1892.
19. J. Nerv. and Ment. Dis., Oct. 1892, 765.
20. Tr. Am. Neur. Ass., 1892.
21. Jour. Nerv. and Ment. Dis., Feb., 1893, 97.
22. J. Nerv. and Ment. Dis., Sept., 1895, 465.
23. Chorea Chronique, Paris, 1889.
24. Med. News, Phila., XLIII, 1883, 200.
25. Schmidt's Jahrbucher, June 15, 1893. Quoted in Dercum's Text-Book of Nervous Diseases, 256.
26. Arch. f. Psych. u. Nerv., Bd. XXX, Heft I.
27. Centralbl. f. innere Medicin, 1894, 918.
28. Virchow's Archiv, Bd. CXXXIX. Abs. in Neurol. Centralbl., May 15, 1895.
29. Brain, Lond., 1897, XX, 22.

CLINICAL CASES.

VI.

DEATH FROM AN UNUSUAL CAUSE IN A CASE OF DEMENTIA PARALYTICA.

(MULTIPLE THROMBOSIS OF BACTERIAL ORIGIN.)

BY DR. H. J. BERKLEY.

Sudden death occurs somewhat frequently in paresis from a number of causes, principally after infections, from lesions of the aorta, from dysphagic troubles, pneumonias whose physical symptoms have been overlooked, from apoplexies, and after apoplectiform and epileptiform conditions. Such complications may supervene at any stage of the primary malady. Death from multiple thrombosis of the cerebral vessels, due to changes in the blood induced by toxic products, as well as from the presence of bacteria in such numbers as to form the nidus for a blood-coagulation is, however, in my pathological experience exceedingly rare.

The clinical history of the case is of little importance. A man (J. D.) aged 43 years, a blacksmith by occupation, with a good family history, and no indications of having had lues, manifested either in his own body or in those of his children, in the early summer of 1896 began to complain of headache and pain referred to the stomach, and soon thereafter became careless and forgetful about his work. There were never any periods of excitement, or delusions of an expansive order, and the only symptoms noted were the slowly progressive dementia accompanied by the eye and deep reflex indications of dementia paralytica. Accompanying these were great slowness and hesitancy in speaking, with well-marked tremor of the small muscles of the face and hands. Occasionally there were spells of agitation during which the man would attempt to escape from surveillance. Toward the end the patient became incapable of feeding or otherwise attend-

ing to himself. Death occurred suddenly during an attack of lobar pneumonia on May 5, 1899.

The *anatomical diagnosis* (the autopsy having been performed by Dr. Opie) reads: Acute lobar pneumonia; mixed hepatization; bronchitis; hemorrhagic cystitis; inflammation of the rectum with superficial ulceration; decubitus.

The brain showed the usual arrangement of the basal vessels. The pia over the convexity had a milky-white gelatinous thickening, most marked along the course of the vessels, and along the longitudinal sinus. There was a similar opacity over the superior aspect of the cerebellum. One large cerebellar pial vein, and two smaller cerebral ones, were seen to be plugged with white-blood thrombi, and in a number of others, hardly visible to the unaided eye, the same condition of affairs was noted.

The cerebral tissues were preserved in formalin, alcohol, and Müller's fluid for microscopic examination.

The Pia Mater.—There is nowhere any great thickening of this membrane, though everywhere in its meshes are round cells, sometimes scattered, at others arranged in clumps. These cells are just twice the diameter of a red-blood corpuscle, and have a fair amount of stainable protoplasm, in the center of which appears a rounded or elliptical nucleus. The membrane is generally raised away from the outer surface of the cortex, as if there had been stasis of the lymph currents, while now and then there are places where it is strongly adherent and united with the fibrillæ that cover the outer surface of the gray substance.

The blood-vessels of the meninges attract attention. In all of them the endothelial and subendothelial tissues are free from any morbid change. The condition of the muscularis varies considerably. In some the component fibres are normal and their nuclei are distinct, but from this perfect state all degrees of alteration of a pathological character are to be noted up to an entirely fibrous-hyaline condition of the layers. In the largest number of arteries the process is just beginning, and the nuclei are losing their staining qualities, as well as becoming distorted and shrunken. The adventitia participates somewhat in the morbid process, the lamina being thickened to a moderate degree, besides containing some round cells which are newly formed.

The contents of the vessels merit a careful study. Both arteries and veins are distended with blood, and it is unusual to see an empty vessel. In a majority the red cells are uniformly distributed throughout the lumen, while in others the plasma has separated from the corpuscular elements, which are now collected together in one segment of the circle. Besides these simple coagula there are multiple thrombi, white and red, both in the veins and arteries. These may be so large as to plug vessels visible to the eye, and to be distinctly seen through the walls; or, on the other hand, they may be so small as to stop only the nutrient arterioles. The appearance of the thrombi varies greatly. Some are entirely devoid of red and white corpuscles, and show an homogeneous mass that takes the eosin or safranin stain. In others the red corpuscles have retired to one corner of the vascular circle where they are clumped together. In still others, the centre is occupied by a number of red corpuscles with the coagulated serum filling the remainder of the lumen up to the wall of the vessel. A few of them have a nucleus composed of white corpuscles, among which may be distinguished polymorphonuclear, mononuclear, and transitional cells, around which the plasmatic material has solidified. Under high powers, and with special stains, the histological appearance of the coagula in all the thrombi is essentially similar. A central nidus is always present, composed of a few red or white corpuscles, as the case may be, while radiating from it are innumerable strands of fibrin, which penetrate among the elements and plasma. In the centre of the mass lie aggregations of a rod-like bacillus, morphologically identical with the *bacillus coli communis*. The general arrangement would, therefore, be a central core of blood-corpuscles and bacteria, with fibrin fibres extending from this centre to the periphery of the vessel, holding in the meshes single organisms, red corpuscles, or a coagulum free from corpuscular elements.

The bacteria are found not alone in the central regions of the thrombi, though there they are most numerous. They are also seen as single organisms, or in groups of two or three everywhere in the blood channels, lying between the corpuscles, but are never clumped together except in the thrombi. The presence of the fibrin, as well as the general character of the white-

blood coagula, would indicate that the majority of these had formed before death.

The thrombi are numerous in the meninges; that some of them are fairly old is evidenced by the fact that the hematic portion of the red blood-corpuscles has exuded from it and is aggregated into masses at the edges of the coagula. This, however, has only occurred in two large veins. In the pial tissues no organisms of any kind are to be found, these being confined entirely to the interior of the vessels.

The Blood-Vessels of the Cortex.—Veins, arteries, and capillaries are distended with blood, and even in the smallest vessels multiple thrombi are to be noted everywhere. A majority of them are white, with all the corpuscular elements absent from the plasmatic masses; others contain the central corpuscular nucleus as in the meninges. In some vessels are seen clusters of the bacilli, while scattered organisms appear also in the blood-coagula. The bacteria are all of one type—corresponding to that of the colon bacillus. Other organisms are nowhere to be found.

The perivascular channels are moderately dilated and contain, besides round cells, clumps of hematoidin crystals and *débris*. There is an universal though moderate degree of periarteritis. In some vessels this is much more pronounced than in others, the extravascular space being filled by the cell proliferation. The media in all the vessels is moderately distinct, not thickened, and the nuclei are usually preserved. A slight hyaline alteration of the muscularis is now and then seen, but it is never extensive. The intima and sub-intimal tissues are not hypertrophied, and the nuclei are distinct and take the stain well. The few capillaries that are empty of blood look dilated, though the nuclei in their sheaths are stained equally as well as those in the larger-sized arteries. The veins of some size have nothing abnormal in their tunics.

The Cortical Epiblastic Elements.—Portions of the ascending frontals, the paracentral and cuneal convolutions of both sides were examined.

Weigert-Hematoxylin.—In the subcortical medullated tissues the nerve fibres take the blue-black stain fairly well, although it appears to be less dense than is usual; many of the tubes are extremely varicose, the myeline even being collected into large

round globules. Proceeding outward from the medullary centres, there is soon a distinct diminution of the intercellular myelinated tubes. Even in over-stained and slightly decolorized sections but few of the large radial fibres are to be traced up to the level of the second pyramidal layer, and none can be followed into the first layer. In the region of the polymorphous cells a fine autochthonic fibre is now and then to be noted, but as a whole the meshwork is greatly diminished in density. In the outermost layer of the rind few nerve fibres of any description are to be observed. Here and there is a single one fairly well stained, the majority of them preserving their rounded contours, though many others are quite varicose. The outer tangential band has entirely disappeared.

The pyramidal and other cells by this method of staining show heavy deposits of metaplastic granules. In some the dark-brown rounded grains are confined to one portion, usually the basal region of the cell, while in others they are diffusely scattered through the entire protoplasm.

The nerve cells do not appear to be as numerous as usual, while in some fields there are areas that contain almost none of them. There is apparently no excess of neuroglia cells in the central regions and in the white matter subjacent to the cortex.

Osmium-Copper-Hematoxylin Staining.—The neuroglia cells of the outer layer of the cortex are stained with great distinctness. It is difficult to determine whether they are more numerous than in health, but there is definitely no proliferation in foci. Each stellate cell has a centrally situated, rounded nucleus, tinged almost black, and around it a more lightly staining protoplasm from which wire-like streamers come off, some rising to the surface of the brain, while others, penetrating more deeply, enter the gray layers, there to diminish in size and be eventually lost. Still others course laterally, adding to the star-rayed appearance. Numbers of the fibres follow the course of the nutrient arteries, bending in and out with the curves of the vessel, but they do not appear to have any connection with the sheath of the vessel. None of these astrocytes has a visible pseudopod.

After the middle of the layer of small pyramidal cells is reached, the neuroglia cells with their extensions almost entirely disappear. In the larger pyramidal and polymorphous layers none

are visible by this method. In the portion of the polymorphous layer contiguous to the white matter they reappear, but owing to the density of the tissue in this region are not so distinctly seen as in the barren layer. The neuroglia nuclei in the white substance are fairly numerous, though hardly more so than in normal preparations.

The podasteroid cells of the neuroglia are not brought out in any numbers by this method. In the depths of the sulci an occasional one can be determined clinging to the outer wall of a vessel, but elsewhere they are invisible.

The medullated nerve tubes are exceedingly scanty in the middle and outer gray layers; even the radial fibres are thin and infrequent. None of the tangential fibre-bands are to be noted at all. Whenever an intercellular fibre is brought into view it is atrophic and thin.

The Nerve Cells. Aniline Stains.—Taking into consideration the degree of atrophy of the convolutions, especially those of the anterior lobes, the state of the nerve elements is surprising. In some places, as previously mentioned, they are situated far apart in the tissue, but elsewhere they are quite numerous and present but few profound alterations. The cellular body has a moderately large clump of yellow granules in it, but in the remainder of the protoplasm the Nissl granules stand out distinctly. Some of the cells are slightly atrophic and the protoplasm has shrunk into one corner of the cell space, but the nucleus is distinct and unaltered in contour. The eosin-hematoxylin preparations give the most satisfactory view of the vesicle and its contents. Chiefly noticeable is the fact that in a majority, though not in all, of the nuclei the basic hematoxylin is rejected by the nucleolus and molecular particles of the cytoplasm, while the substance itself takes on a blue coloring, though not sufficient to interfere with its translucency. The histological relations between the membrane, substance, and nucleolus remain otherwise normal.

The Neuroglia.—Nowhere with the hematoxylin or safranin stain is there any augmentation in the numbers of the nuclei of the supporting elements.

The Cerebellum.—The actual pathological change in the vascular walls in this region of the encephalon is inconsiderable,

but thrombi are frequent. One very large vein in the meninges is plugged by a white coagulum that contains numerous bacilli. Other smaller ones in the medullary substance are equally obliterated, and in two instances the lumen was filled by aggregations of white blood-corpuscles—a finding that had not been determined elsewhere. The Purkinje cells have suffered more than the Betz cells of the cortex; none of them being quite normal. In those least damaged the Nissl granules are broken up and appear as a fine dust throughout the cell, while in others the staining of the protoplasm is so intense that the whole body appears as a dark blue mass. Many of the cells are in a state of advanced atrophy, being shrunk into an irregular mass, and there are long distances along the border of the molecular zone in which none are to be found. The nuclei of the Purkinje cells are shrunk, their outlines are irregular; within the circle the molecular particles are indistinguishable from the general mass of the caryoplasm, or are indistinct. Even the nucleolus has at times vanished, though in a number of the nuclei it is still visible and accepts the stain. The neuroglia and other cell elements of the molecular layer show no alteration of a morbid character by the aniline stains.

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THE STUDY OF A YEAR'S STATISTICS.

By CHAS. W. PILGRIM, M. D.,

Superintendent Hudson River State Hospital, Poughkeepsie, N. Y.

As the value of statistical studies depends altogether upon their accuracy, it has occurred to me that the study of a year's statistics, with all the data fresh in mind, might be of as much interest and value as references to a much larger number of cases where many interesting points are apt to be lost sight of through lack of familiarity with the histories. I therefore present the results of an examination of the statistics of the Hudson River State Hospital for the year ending September 30, 1899.

There were 522 admissions, of which number 504 were upon original commitments, while 18 were transfers from other institutions for the insane. An examination of these cases shows the following facts: 41.5% presented symptoms of melancholia, 32.5%, symptoms of mania, 20% were cases of dementia, and 6% were general paretics. The proportion of cases of melancholia compared with those of mania is greater than is usually given by writers upon this subject. In fact most English authorities reverse these figures and accord the higher percentage to mania. Tuke, in his Dictionary of Psychological Medicine, quoting from the Forty-third Report of the Commissioners in Lunacy, gives 49.1% to mania and 24.9% to melancholia. He also quotes from Dr. Boyd's table, which gives even a lower percentage to melancholia, but adds: "From a large number of asylum returns which we threw together some years ago, melancholia appeared to be much more frequent than in Dr. Boyd's table." Clouston states that 55% of the admissions to the Royal Edinburgh Asylum during a period of six years were classified as mania, while only 36% were diagnosed as melancholia. In my recent reading on the subject I have only found two writers who place melancholia first in frequency. Kirchhoff, in his "Handbook of Insanity,"

says that mania appears to be a less frequent disease than melancholia; and Dr. David Blair of Lancaster, in an article on "The Treatment of the Phthisical Insane,"¹ says that melancholia affects forty per cent of the insane and mania thirty per cent, a statement that comes very close to the figures which I have presented. In order to satisfy myself that my figures were correct, I examined the tables giving the forms of insanity upon admission in all the hospitals in the State of New York for the year ending September 30, 1898, and found, by excluding the transfers of terminal dementers from one institution to another, that the cases diagnosed as melancholia made up a little more than 40% of the original admissions, while those diagnosed as mania fell a little short of 29%. I am certain, therefore, that the ideas which we have heretofore held in regard to the frequency of these two forms of insanity must be changed, at least so far as the State of New York is concerned.

Of the year's admissions 66 were sent home during the year as recovered; 19 as improved; 2 as not insane; and 60 died. Of those remaining at the end of the year, 87 will probably recover, 44 will probably improve, while 230 present no favorable symptoms whatever and will in all probability remain insane until death. We see, therefore, that about 30% of those admitted either recovered during the year or still have some chance to recover; 12% were either discharged as improved or will probably improve; 11% died, and 47% were chronic when admitted and will remain insane until they die.

One hundred and two cases, or nearly 20% of the admissions during the year, owed their insanity to moral causes—to mental strain and worry due to loss of friends, business and family troubles, religious excitement, etc. These causes, as might be expected, were more frequent, by nearly 50%, in the women than in the men.

Seventy-five patients, nearly all of whom were men, became insane from the excessive use of alcohol; 21, nearly all of whom were women, were victims of some drug habit; while 33, nearly all of whom were men, owed their insanity to immorality of one kind or another. At the first glance it would seem that in nearly

¹ The Journal of Mental Science, April, 1900.

25% of all the admissions the insanity might have been prevented by better methods of living, but it should be remembered that many of those who fell by the way owed their fall not so much to deliberate wrong-doing as to their inherited nervous instability, for which they were in no way to blame. Without this hereditary weakness and predisposition to insanity they would probably have escaped this awful penalty for their lack of self-control, as thousands of others do.

One hundred and ninety-seven of those admitted—77 men and 120 women, or about 33% of the total number—became insane from purely physical causes, such as diseases of the various organs, injuries, or physiological crises. Such causes, especially those of physiological origin, are of much greater frequency in women than in men. Fourteen cases were due to congenital defect; in 29 cases no cause could be ascertained, and 3 were not insane, but were simply victims of vicious habits. In 48 cases heredity was given as the sole cause, while in 122 others an inherited predisposition existed. Nearly one-third of the patients, therefore, started life heavily handicapped by the heritage of an insane diathesis.

Among the acute cases admitted, 175, or nearly 33.5%, were instances of melancholia, while 70 (13%) were cases of mania. The relation between these two kinds of insanity in the chronic form was just the reverse, the percentages being respectively 8 and 19.5. The number of cases diagnosed upon admission as acute melancholia, which is just about two and one-half times as great as that of acute mania, is quite suggestive. It not only proves, as is generally admitted by alienists, that it is the rule for insanity to begin with depression, but it also shows that cases are sent to the hospital much earlier than they used to be. It is evident, therefore, that admissions now-a-days must show a preponderance of cases of mental depression, inasmuch as many patients are received before the later stage of mania has had time to develop. It is undoubtedly this fact which so often gives rise to the assertion that the form of insanity has changed of late and that the terribly troublesome cases of former years, in which restraint seemed so necessary, are no longer seen. But it is my belief that the real reason for the infrequency of such cases is that hospitals for the insane are to-day regarded much more

favorably than they were even a decade ago, and their aid is much earlier sought and their full benefits much oftener obtained. As Clouston says—"Admissions to hospitals for the insane will increase for many years to come, not from any positive increase of insanity at all, but from a more extended realization by society, of every grade, of the benefit and convenience of such hospitals. It is getting better understood that many forms of mental disease are just morbid accentuations of natural disposition; in one case temper shading off into mania; in another, keen sensitiveness of feeling passing into melancholia; and in a third suspiciousness verging into insane delusions, so that the subjects of such changes become unfit for family or social life. The extreme difficulty of treating such mental and morbid accentuations—the misery and family confusion caused by them, the risks of every kind run through them—all suggest the relief and safety of a well-appointed hospital in more and more cases. The world is getting too busy to be able to attend to its mental breakdowns at home, and it is getting more and more intolerant of very marked divergences from social order, and even of neglect of the conventionalities of life." And it is fortunate for the hospital, the patient and the community at large that such views can be advanced.

Upon examining the 501 discharges for the year, which include 340 cases admitted in previous years, we notice a remarkable similarity between the results of the previous year and those which we expect from the admissions of the past year; for 42% were sent home either cured or improved, which is exactly what we expect from the admissions of the year which we are examining. Of course some among the 42% sent home will relapse and have to be returned; some of those now classed as recoverable or capable of improvement will fail to bear out the present favorable prognosis, and many of those classed as chronic will die within a few years, so that in the end the results will probably correspond very closely with those obtained by Sir Arthur Mitchell, who followed the life-histories of nearly 1300 patients admitted into Scottish asylums. The results after twelve years were as follows: 68.3% were either living and insane or had died insane, and 31.7% were still living and sane or had died sane. It was his opinion that 4.7% of those sane at the end of twelve years would

relapse and die insane, thus leaving 27% of the persons admitted likely to die sane. As is well known, the statistics for England and Scotland appear better than they do with us, by reason of the fact that old and senile cases are sent to the work-house instead of to the asylum. In the State of New York there is no such provision for what might be called physiological cases and they must all be sent to State hospitals. The recovery rate of 24.21% which we are able to show for the year is, therefore, as good as could be expected where all kinds of cases, including the senile and defective, are admitted.

An examination of the statistics for the first twenty-five years of the existence of the Hudson River State Hospital shows that there has been a marked increase in the recovery rate during the past few years. From 1871, when the hospital was opened, to the close of the fiscal year of 1896, the recovery rate amounted to a little more than 21% of the admissions; 11.5% were discharged improved, thus making about 33% who were returned to their homes, while the records for the year which we have under examination show an increase over these figures of 9%. Of course the well-known fact that the recovery rate is low during the early years of a hospital's life, on account of the transfer of chronic cases from other institutions, must be taken into consideration, but despite this fact I think it can be safely asserted that the present methods of management and treatment are better calculated than the older methods to bring about recovery in favorable cases, as well as to make happier and more useful the lives of the less fortunate ones in whom recovery cannot be expected.

As previously stated, the recovery rate, based upon the original admissions, was 24.21%. Of the 122 patients discharged as recovered, 110 were placed under hospital treatment within a year of the commencement of the disease, while only 12 recovered where hospital treatment had been delayed beyond that time. These figures more than bear out the statement which I made some years ago, from a study of the statistics relating to the subject, that the chances for recovery are eight times as good when hospital treatment is begun within a year, as they are where it is postponed for a longer period. To appreciate more fully the advantages of early treatment and the rapidity with which the chances for recovery decrease with every month's delay, it is

but necessary to note that of the 110 patients who recovered, 80 were sent to the hospital within 3 months of the beginning of the disease, 17 in from three to six months, 11 in from six to nine months and 2 in from nine to twelve months. Surely no argument for early treatment could be stronger than these simple figures. Another interesting point in this connection is the fact that 99 of the recoveries occurred within a year after admission. This bears out the fact, which is well known to the alienist, that where recovery is delayed beyond a year the chances for complete restoration are only about one-fourth as good as they were before the expiration of that time. In order, however, that a too discouraging view may not be taken, it should be remembered that recoveries do occur under less favorable conditions. Eight of our year's recoveries had been insane for from two to five years before coming to us, and nine were with us for from two to five years before recovery took place. In the light of such statistics it is well to be conservative in regard to prognosis, for in most cases of insanity, as in other diseases, "while there is life there is hope."

In addition to those patients who were completely cured, 61 were so far improved that they were returned to their homes, and in some cases resumed their occupations as wage-earners, and three were victims of the drug or liquor habit and were discharged as "not insane." Our records, therefore, show that more than 42% of those discharged, exclusive of the transfers to other institutions, were restored to home and friends.

The effect which the age of the patient has upon prognosis is well shown by an examination of the ages of those who recovered during the year: 41 were under thirty, 59 were between thirty and fifty, and only 21 were more than fifty years of age. These figures show, therefore, that recovery occurs five times as often where the patient is under fifty as it does when he has passed that age and begins to go "down the slant of life." Of equal interest from an ætiological standpoint is the study of the ages of those admitted, which shows that only 15 were under twenty and 159 over fifty; while 348, or 67%, were between the ages of twenty and fifty. These figures only emphasize the well-known fact that insanity is a disease of the active period of life.

The seasons of the year certainly have some effect upon the

admissions, and perhaps also upon the outbreak of insanity. The admissions during the summer and winter months were in the proportion of 54% to 46%, while the months of May, June and July show a steady rise and an excess of 20% over the admissions during any other quarter of the year.

There can be no reasonable doubt that the seasons exert a marked influence upon the recovery rate, for 65% of those who recovered were sent home during the months of spring and summer, while only 35% were so discharged during the autumn and winter months. Régis makes the statement that melancholia is aggravated in the winter, and that but few cases of mania recover during that season. It is easy to believe that the fresh-air, the sunlight, and the out-door life of summer must act as powerful agents in helping to restore the diseased brain to its normal condition.

The total deaths during the year were 231; of this number 116 were men and 115 were women, forming together a little more than 11% of the average number under treatment. This is somewhat higher than the usual rate and is explained by the fact that more than 22% of the deaths among the men occurred within one month after admission. Over one-third of those who died within this period were beyond seventy years of age, while the other two-thirds were around middle life and succumbed to acute inter-current diseases—due principally to lives of exposure and the abuse of alcohol. This fact bears out the statement made by Clouston that "men and women as they approach middle life should be more careful of alcohol, of excesses, of avoiding the causes of rheumatism, gout, bronchitis and other diseases, because their diminishing nerve energy will no longer combat successfully those enemies of health, and they succumb for want of nerve energy to what a few years before they would have resisted with apparent impunity."

Owing to the fact that such a large number of deaths occurred shortly after admission, the average duration of insane life for the year was reduced to 7.1 years. An examination of the statistics since 1888, when our present methods of tabulation went into effect, shows that it was 10.8 for men and 13.4 for women, making a general average of 12.1 years. In basing calculations upon the probable duration of life in the insane, twelve years has

generally been taken as the probable period, and our statistics bear out the accuracy of this practice to a remarkable degree. They also confirm the well-known fact that the insane life is about one-third longer in women than it is in men, due not only to the greater tenacity of life in women but to the fact that they suffer less than men from the more fatal forms of insanity. For these same reasons the chances for recovery are always better in women than in men.

As might have been expected, the largest number of deaths took place during the winter and spring months, 61% having occurred between October and April, and only 39% between April and October. The majority of the deaths during the winter months, aside from those due to general paresis, were caused by acute diseases of the air passages or of the intestinal tract, while those which occurred during the summer months were due to the exhaustion following diseases of the brain or lungs, or to the natural debility of old age. The disease claiming the greatest number of victims was general paresis, and it occurred just four times oftener in men than it did in women. Tuberculosis ranked next in frequency, but here the conditions were reversed and women suffered from it somewhat oftener than men.

An examination of "the hour of death" showed that 26% died between midnight and 6 A. M., 19% between 6 A. M. and noon, 31% between noon and 6 P. M., and 24% between 6 P. M. and midnight. By adding these percentages together we find the curious fact that the deaths were very evenly distributed between the hours of darkness and light, 115 patients having died between 6 P. M. and 6 A. M., and 116 between 6 A. M. and 6 P. M. Desiring to pursue this question still further, I examined the deaths for the ten preceding years, nearly 1500 in all, and found this statement strikingly confirmed, as a change of one-half of one per cent would have made the deaths exactly even during the hours of day and night. A chart which I made of the deaths for the year—and I might also add that the statements which I am about to make were corroborated by a chart made of all the deaths during the preceding decade—showed, when divided into sections of three hours each, that the highest point of the curve was reached, both for men and women, between the hours of 3 and 6 P. M., nearly 20% of all the deaths having occurred between

those hours. The next highest point was between the hours of 3 and 6 A. M., although there was a decided fall for both sexes for the single hour from four to five, when the line went down to the lowest point reached in any hour of the twenty-four. There was also a decided fall, especially for women, between eleven and twelve in the morning, which is in direct contrast to the statement made by Dr. Beadles of Colney Hatch, that the most fatal hour for women is shortly before noon. For the other hours the recording line remained remarkably steady for both men and women. These figures, therefore, show that there is some reason for the popular belief that many deaths occur during the early morning hours, but they show still more plainly that the majority of those who suffer from long continued mental disease give up their lives toward the close of day. As a general rule "death softly follows life" and suffering at the end, either physical or mental, is of rare occurrence. In fact it is not an uncommon thing to notice a clearing up of the clouded brain a few hours before the final change. This fact was noticed by Rush a hundred years ago and, in my opinion, too little has been written of it since. From my own observations, and from the reports of reliable nurses, many patients, especially those dying of phthisis, or after surgical operations, or from acute intercurrent diseases, or injuries which produce a profound shock upon the general system, become calm and coherent shortly before death. This may be accounted for either upon the theory of counter-irritation or on the principle enunciated by Claude Bernard that when a histological element dies or tends to die, its irritability augments before it is diminished. Of course this temporary brightening does not often occur in cases of terminal dementia or in general paresis where there are profound changes in the structure of the brain, but I am convinced that it is not rare for the melancholy or maniacal insane, as good old Dr. Rush observed, "to discover a greater or less degree of reason in their last hours, just as the sun, after a cloudy day, sometimes darts a few splendid rays across the earth before he descends below the horizon."

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SEPARATE PROVISIONS FOR TUBERCULOUS PATIENTS IN STATE HOSPITALS FOR THE INSANE.¹

BY ARTHUR H. HARRINGTON, M. D.,

Superintendent Danvers Insane Hospital, Hathorne, Mass.

The scope of this paper is to present to you such information as I could obtain regarding the prevalence of tuberculosis in State hospitals for the insane in the United States, to indicate the need, which I believe exists in our State hospitals, of giving greater attention to the keeping apart of the tubercular from the non-tubercular patients, and of bringing forward what is being attempted, and what has already been accomplished along this line.

Osler has stated in his work upon the principles and practice of medicine, that "tuberculosis is the most universal scourge of the human race," and authorities generally, agree in affirming that of the deaths from all causes, one-seventh are due to tuberculosis.

Inquiries have been made in the past by various investigators regarding the question of the amount of tuberculosis among the insane in hospitals and asylums, and the death rate from this cause. In Tuke's Dictionary of Psychological Medicine, Clouston is authority for the statement that "in the older institutions, where the hygienic conditions were bad, the number of deaths from phthisis was from 25 to 30 per cent of the whole number who died." From 1842 to 1863, the percentage of deaths due to tuberculosis was found by Clouston to be 29. During the first twenty-three years of the existence of one of the Scottish asylums, the death rate from phthisis was 35.4 per cent of the whole number of deaths.

In a prize essay by F. G. Crookshank, M. D., published in the

¹ Read before the meeting of the American Medico-Psychological Association, held in Richmond, Va., May 22-25, 1900.

October number of the *Journal of Mental Science*, 1899, the phthisis mortality in various English asylums from 1871 to 1897, varied from 9.5 per cent to 17.5 per cent. In 1862, Workman found, in eight American asylums, that consumption was the cause of 27 per cent of the whole number of deaths.

Dr. J. W. Babcock, in a paper read before this Association in 1894, states that in the lunatic asylums of South Carolina, the proportion of deaths from tuberculosis upon the whole mortality, for the ten years ending November 1, 1893, was from 14 to 34 per cent, averaging 22 per cent. From the reports of ninety-eight other American asylums, published previous to 1894, Dr. Babcock, in the same paper to which I have just referred, presents a table in which he has tabulated the percentage of deaths in these asylums from tuberculosis:

MORTALITY FROM TUBERCULOSIS IN 98 AMERICAN ASYLUMS.

No. of Asylums.	Percentage of deaths.
3	0
1	0-1
2	1-5
14	5-10
16	10-15
24	15-20
14	20-25
13	25-30
6	30-35
3	35-40
1	50-60
1	60

Dr. Babcock also obtained the total mortality from tuberculosis in eight American asylums from their beginning, and found it to be 21 per cent of the total mortality from all diseases.

In order to gauge, if possible, the extent to which tuberculosis has prevailed in the State hospitals for the insane throughout the United States, for the five years ending with 1899, I addressed a circular letter to these hospitals in January, 1900, containing four leading questions. The first two questions were as follows: 1st. What has been the total number of deaths for the last five years in your institution? 2d. How many of this number have died of tuberculosis, or of phthisis or pulmonary consumption,

used in the sense of synonyms of tuberculosis? In tabulating the results of these two inquiries, I have, partly for convenience and partly for purpose of comparison, divided the hospitals into groups according to their geographical distribution, thus: The New England States forming one group; the Middle States a second group; the Western and South Western States a third group, and the Southern States a fourth group.

To the two questions which I have cited above, I received replies from 67 State hospitals throughout the United States, and the replies given in terms of the total for each group are as follows:

NEW ENGLAND STATES.

Total number of deaths in all institutions heard from, from all causes, in five years, 3208.

Total number of deaths from tuberculosis in same hospitals, during same period, 383, or a death rate of 11.9 per cent.

MIDDLE STATES.

Total number of deaths in all institutions heard from, from all causes, in five years, 4494.

Total number of deaths from tuberculosis in same hospitals, during same period, 611, or a death rate of 13.5 per cent.

WESTERN AND SOUTH WESTERN STATES.

Total number of deaths in all institutions heard from, from all causes, in five years, 8853.

Total number of deaths from tuberculosis in same hospitals, during same period, 1353, or a death rate of 15.2 per cent.

SOUTHERN STATES.

Total number of deaths in all institutions heard from, from all causes, in five years, 1958

Total number of deaths from tuberculosis in same hospitals, during same period, 393, or a death rate of 20 per cent.

It will be observed that the percentage of deaths from tuberculosis increases as we pass from the first to the last group.

We may, perhaps, be warranted from this in forming the supposition from these figures (and it may be a natural one also as

opinion goes), that tuberculosis exists to a greater degree in the Southern States, than in other States, but it must be remembered that all the hospitals in the country have not been heard from, and are therefore not included in this enumeration; therefore, it is not safe to make this generalization too positively.

Another deduction which comes out from these figures as they have been given me, is that the hospitals differ widely from each other in the comparative number of deaths from tuberculosis, and this without regard to their division into geographical groups. Thus, of the 67 hospitals, I have made a table, showing the number in which the percentage of deaths from tuberculosis has been less than 5 per cent to over 60 per cent.

No. of Hospitals.	Percentage of deaths from tuberculosis.			
5	less than 5 per cent.			
12	between 5 and 10 per cent.			
16	"	10	"	15
17	"	15	"	20
5	"	20	"	25
6	"	25	"	30
2	"	30	"	35
1	"	35	"	40
1	"	40	"	50
1	"	50	"	60
1	"	60	"	65

The total number of deaths from all causes reported from these 67 hospitals was 18,513. The total number of those dying from tuberculosis was 2741. Therefore, the death rate for 67 hospitals and asylums for the insane in the United States has been, for the past five years, 14.8.

Having given considerable thought to the subject of tuberculosis in insane hospitals, and accepting the authoritative statement that throughout the country in general life, 15 per cent of all deaths are due to tuberculosis, I think we cannot view with composure the presentation that many hospitals for the insane in the United States, have a death rate exceeding what if you please, is the legitimate death rate from tuberculosis. But the fact would seem incontrovertible, for out of the group of 98 hospitals reported by Dr. Babcock in 1894, and out of the group of 67 unselected hospitals, which I report to-day, and for which

I include the returns for the past five years, more than half—50 per cent in my group and 63 per cent in Dr. Babcock's group—have a death rate from tuberculosis extending all the way from 15 to 60 per cent.

For obvious reasons we are obliged to gauge the prevalence of tuberculosis in our asylums largely by the death rate, and while some of our State hospitals appear to be comparatively free from tuberculosis, in others it prevails to a considerable and even serious extent, while in many of them it is several times greater than in the community at large.

We are next led to make a résumé of some of the causes which have been alleged to account for the increased mortality from tuberculosis among the insane in hospitals. It has been said that the insane are persons peculiarly liable to tuberculosis; that many persons come to our hospitals with an hereditary tendency to tuberculosis; that confinement favors the development of the disease; that in the insane the defensive resistance of the bioplasm is diminished; that many are admitted with the disease already upon them. Investigations have been made which, as far as carried out, show that the insane in private dwellings are not more subject to phthisis than other persons.

It has been made quite clear by Crookshank, in his recent article, in his investigation of 1000 persons, that a number of them acquired tuberculosis after they entered the hospital, and I feel warranted, as I believe many of you would, in affirming that as far as could be determined, we have known patients to acquire the disease in the hospital.

Our knowledge of the disease to-day will not allow us to appease our consciences with old-fashioned notions that tuberculosis is hereditary, or that it is a necessary accompaniment of insanity, and that we are powerless to stay its progress. The force of hereditary tendency must be admitted, the diminished resistance of the insane to disease must be granted, allowance must be made for a number of patients admitted already having tuberculosis, but we know that a necessary step in the production of tuberculosis is the access of the bacillus to the organism. And where are the conditions more favorable for the access of the bacillus to a host than in our large insane hospitals?

Under the conditions many of our patients are obliged to have

as their companions, persons afflicted with the disease in a form sufficiently active to produce about them, as it has been expressed in a figure of speech, "a halo of bacilli." No matter how much we may disinfect our wards and rooms; no matter how carefully we may carry out all our regulations in regard to utensils used by the tuberculous, yet none of us can view without apprehension, a patient domiciled on the same ward with other patients who has an active tuberculosis and an excretion of sputum which, with our own eye, we may have seen under the microscope to be crowded with bacilli, knowing also, as has been proved, that such a person may expectorate from several million to three and one-half billion bacilli in twenty-four hours.

Dr. Bucknill, after paying special attention to the subject of consumption in the insane for years, concluded, to use his own words, "That phthisis, which forms so large a percentage of the mortality of asylums for the insane, is the product of the institutions," and we must in this country, I believe, subscribe to a considerable extent, at least, to the correctness of this view.

While I believe that all who have observed a considerable amount of tuberculosis in our hospitals, have been impressed with the feeling that some steps ought to be taken at once to adequately separate patients with active tubercular lesions from the non-tubercular, in order to see if such impressions had brought about any practical result or solution, I addressed two other questions, as follows:

Question 3. Have you in your institution any provision for separating recognized cases of tuberculosis from the non-tubercular? Question 4. Have you in your State any requirement by supervisory or State authority for separating the tubercular from the non-tubercular in State hospitals for the insane?

The answer in the majority of cases to these questions was, "no," but in most instances the great desirability of accomplishing a separation was expressed. I should like to quote directly the replies which I have received to these last two questions, but time will not permit, before I shall have to sum up the trend of thought and work in this regard.

I find that quite generally efforts are being made as far as conditions will allow, to bring about isolation of the tubercular insane. In some hospitals, the most that can be accomplished is

putting the tuberculosis patients into a separate room, away from the general ward. Others, with hospitals built upon the Kirkbride plan, are setting aside a ward for the purpose. Some send all tuberculous cases to an infirmary ward, which may, however, contain non-tubercular patients. Some find it impossible to isolate to any practical extent on account of overcrowding. Some can only employ sanitary measures, as disinfecting, general hygiene and frequent painting.

One hospital has asked for an appropriation for a separate ward for these cases which has not been granted.

One superintendent has been making efforts for the past five years to secure the erection of an infirmary for tuberculous cases.

At the Eastern Washington Hospital provision has been made for the building of an infirmary for such purposes.

At Osawatomie a building is to be erected within a year for such purpose.

The Northern Indiana Hospital has under construction two small wards for complete isolation of advanced cases.

In Indiana, I learn that it is the aim in all the hospitals, as far as conditions will permit, to isolate the tuberculous.

The opinion is expressed by several superintendents that all tuberculous cases should either be isolated or removed from the institution.

In Michigan the State Board of Health is pushing various plans for prophylaxis. They are urging a separate hospital for the tuberculous insane.

In several States, particularly in the west, active measures are being urged to bring about separate provisions for the insane who are victims of tuberculosis.

I am able to report the gratifying results in two institutions where, a few years ago, separate buildings, allowing isolation of tuberculous insane patients, were constructed. One was at the County Asylum, Lancaster, England. Dr. David Blair reports that, since its occupation, the death rate from phthisis has been reduced by nearly one-half.

Dr. A. B. Beattie, of the Southern Illinois Hospital, writes me that a separate cottage was constructed a few years ago for tuberculous female patients. Since that time the number of tuberculous female patients has been markedly reduced.

I regard these two instances as of striking evidence in showing what has and what undoubtedly can always be accomplished by complete isolation of the tuberculous insane from the other patients of the hospital. In fact, it has become axiomatic that the degree in which tuberculosis is controlled depends altogether upon how far-reaching the preventive measures are.

Disinfection, hygiene, the systematic care of the immediate surroundings of the patient, are good as far as they go, but I believe there is nothing short of isolation sufficient to prevent the association of the tubercular with non-tubercular patients, which will give us the proper immunity. And we can see that this conviction is steadily growing in the minds of many of the superintendents of hospitals for the insane in this country, in the efforts which, as I have shown some of them are making, and in several instances successfully, to establish isolation wards in fact and not in name.

Should a single acute disease of an infectious nature annually add to our death rate from 15 to 30 per cent, and even more, as we find that in some hospitals tuberculosis does, we would take the most stringent measures to suppress it; but, because of the insidiousness of tuberculosis, and because, I suppose, we have always had the disease with us, we have, it seems to me, taken it as a matter of course that it must always remain.

But I believe the indications are that greater attention is to be given to this subject in the near future in our hospitals. For, *First*, we know that tuberculosis is a disease which is capable of being greatly limited by proper management. *Second*, we know that proper management consists in separating the tubercular from the non-tubercular in our hospitals. *Third*, it is the duty of the State to provide its hospitals with the *means* of taking care of its tuberculous insane in such a manner as shall prevent the infection of the non-tubercular, and also give those suffering from the disease the care necessary.

I desire to acknowledge my indebtedness, in the preparation of this paper, to articles by Dr. J. W. Babcock, Dr. F. G. Crookshank, Dr. David Blair, and to the superintendents of the hospitals who answered my inquiries.

LEGAL AND MEDICAL INSANITY. REFLECTIONS
UPON THE RECENT TRIAL AND CONVICTION
OF BRADFORD P. KNIGHT AT AUGUSTA,
MAINE.

By C. P. BANCROFT, M. D.,
Superintendent New Hampshire Asylum, Concord, N. H.

The trial of Bradford P. Knight is interesting because it presents a repetition of the old, old blunders that have appeared and reappeared from the time of Lord Hale's famous dictum down to our own more enlightened period. The case is particularly interesting because of the remarkably lucid charge of Judge Emery to the jury in which he clearly outlined two types of insanity—one of broader, more inclusive scope, which he called *legal insanity*; the other more limited and partial in its mental effects, to which he gave the name of *medical insanity*. Thus it was once more demonstrated how imperfectly insanity is understood by the lay observer, and how absurd it is for one not familiar with mental disease, no matter how learned he may be, to formulate classifications and definitions regardless of clinical facts. Furthermore, the case is interesting because the prisoner, in accordance with a law of the State, had been placed under observation at the State insane hospital at Augusta for several months prior to the trial, was pronounced insane by its superintendent, was also examined by specialists summoned by both the State and the defense and declared to be insane by them, was in fact virtually admitted to be insane by the State at the time of his trial, and at its close was remanded, as being insane, to the State asylum where he still remains. It was not so much the fact of insanity as the emphasis that was laid on the degree and type of insanity that makes this trial an interesting one.

Bradford P. Knight is nearly forty-five years of age. His mother was insane for one year; a sister, a maternal aunt and a

brother were insane; a maternal uncle died in an insane hospital. Knight's disposition was naturally cheerful, and nothing unusual was noticed until, at about fourteen years of age, he began to be moody and silent at times, saying that he was coming to want some day. When about twenty-seven years of age he was married. No especial evidence of insanity appeared until the summer of 1889. About this time he had been working quite hard, and one day while out in the sun was overcome by the heat. He had a high fever, and was sick for two months, being treated for some "brain disease." After this sickness he became very despondent, would leave his home and wander off by himself. On one of these occasions he turned up at the home of one of his brothers, who lived in a distant town. The brother's family noticed that he was mentally unbalanced. He would cry, appear depressed and was unable to concentrate his attention. He attempted to escape from his brother, who, recognizing his mental state, tried to detain him. He was finally returned to his own home. At the time his family consisted of two children, a son and a daughter, and the family relations were pleasant. The depression became so extreme that the family physician was called and found him very suspicious and melancholy. Knight said there was a conspiracy against him. His mental state was such that the physician ordered his immediate commitment to the insane hospital at Augusta. The patient was so dissatisfied at the hospital, so restless and so anxious to go home that his family removed him before any marked improvement was manifest.

After his discharge from the hospital his record was one of alternate depression and moodiness. Although he did his daily work with fair regularity, those who knew him intimately recognized that he was far from being mentally well. He was suspicious, gloomy and capricious in his conduct. He suffered much from insomnia and took large and repeated doses of hypnotics to procure sleep. It was about two years after his discharge from the insane hospital that he began to be unduly intimate with Mamie, his wife's sister, who at the beginning of the intrigue was about thirteen or fourteen years of age. A strange mutual infatuation seemed to dominate this unfortunate couple, which finally terminated in illicit sexual intercourse. A mass of vulgar and obscene correspondence passed between them which was

produced in court and which was so vile as to suggest sexual perversion. All the while that this criminal intimacy continued, Knight was suspicious, at times gloomy, again cheerful but only for short periods. There was a record of hallucinations of sight and hearing, of delusions of persecution which he disclosed only to those who knew him most intimately. On the night of September 28, 1898, a physician was summoned to attend him at his home. He found him in a semi-conscious condition, and evidently suffering from opium poisoning. He applied the usual antidotes and in a few hours he was out of danger. Knight admitted to the doctor that he had taken the drug with suicidal intent. According to the testimony of those knowing him most intimately his despondency, occasionally alternating with very brief exhilaration, continued during the ten years that elapsed after his discharge from the hospital. He would frequently tell his wife that he was doomed to hell, that he must die. He carried his head low and tried to avoid people; he would frequently burst into tears, and was morbidly sensitive about his having been declared insane at the time of his commitment to the hospital and was fearful that people would still think him insane. At times, especially at night, he would become quite agitated, pacing the floor for hours, while his wife would bind his head with wet towels, give him sleeping potions and try in various ways to quiet him. Sometimes when laboring under this excitement he would throw the chairs across the room, and so strike and clutch his throat as to leave black and blue finger-marks on his skin. On one occasion when he had retired early, his wife heard a heavy fall in the room overhead; hastening to his room she found him on the floor lying partly across the threshold, hugging his trousers to his breast, and appearing wild and excited. When asked what was the matter he only cried.

The improper relations continued between Knight and his wife's sister, and finally led to his wife leaving him temporarily. About a year and a half before the murder the young woman went to the seashore for a while. In correspondence between them she admitted sexual intercourse with another man—a fact that did not seem to disturb Knight very much at the time. Not long after her return from the shore, through the influence of an older sister, the young woman became interested in religious

matters and evidently was determined to reform and to break off her improper relations with Knight. It was then that he began to be suspicious and to think that Mamie and her sister were conspiring against him to put him in the asylum. The more he reflected upon this the more depressed he became. On one occasion he told a friend, in reply to an inquiry why he was so despondent, that his wife's sister had experienced religion and was talking about him, and that if she did not stop her talk, he should kill her.

Knight frequently importuned the young woman and became so persistent in his attentions that she left home, unbeknown to Knight, and took up her abode in a distant town in New Hampshire. He finally located her and visited her. She was thoroughly alarmed at his determined appearance on this occasion and evidently succeeded in inducing him to return on condition that she would be friendly with him. Not long after she returned to her home and secured a position as domestic in a family in Gardiner. While in this new place Knight still followed her, becoming more and more demoralized by the evident attempts on the part of the two sisters to evade him. Finally he induced his wife, who had not returned to his home but was working at a hotel in Augusta, to go with him to Gardiner where her younger sister was working and make another attempt to dissuade her from talking against him. His wife left him in a public park while she went to deliver his message to her sister Mamie. While waiting for her return Knight took an old envelope out of his pocket and wrote the following words on the back: "I am in Gardiner to-night for the purpose of shooting Mamie Small. I have been to Augusta to see my wife to get her to go to Gardiner to see Mamie and talk with her and see if she can't fix up the trouble between Mamie and I." This envelope he returned to his pocket, where it was afterwards found.

Before his wife returned, Mamie unexpectedly appeared with a boy about twelve years of age. Knight rushed up to her excitedly, and seizing her by the arm asked: "What is all this trouble about?" She told him that if he did not let her alone she would make trouble for him, and, breaking away from him, started to run. Knight pursued her and fired three shots into her body. Then running away he returned to his home about eight miles

distant where he spent the night with his little daughter. The next morning he was arrested. He told the sheriff that his wife's family had been trying for the past five years to put him in the asylum and that he carried the revolver for an occasion like this.

After his commitment to the jail he refused food because he said it was poisoned. The sheriff, in whom he seemed to have confidence, finally induced him to eat by feeding it to him with his own hands. The next day the sheriff brought in the turnkey and persuaded Knight that whatever the turnkey gave him would be all right and then Knight resumed eating. His conduct at the jail being peculiar, and it being well known that he had on a former occasion been a patient at the asylum, he was ordered to be transferred to the State hospital for the insane at Augusta that the question of his insanity might be more definitely determined.

While at the hospital the testimony showed that he was frequently noisy both day and night. He would pace the floor gesticulating and swearing and talking to himself. Sometimes he was extremely noisy. He was very sleepless and occasionally so agitated at night that it became necessary to restrain him with sheets. His conversation showed that he was laboring under delusions. On one occasion he told his attendant that he was swearing "against that clique down there." He conceived the most bitter hatred against the superintendent, telling his wife and the attendants that the doctor was suppressing his mail and keeping his family away from him. On one occasion he spat in the superintendent's face, and on another secreted a door-knob with which, he afterward admitted, he had intended to kill the doctor on the first favorable opportunity. Knight was under observation at the hospital from February 24, 1899, to October 18, 1899.

Dr. Sanborn, the superintendent, testified in court that Knight was insane ten years ago and that he was insane now and that it was his belief that he had never recovered from the first attack, but that his melancholia of ten years ago had gradually merged into a condition of chronic delusional insanity.

A few days before the trial Knight was examined by Dr. Edward Cowles, Dr. H. M. Quinby, and Dr. George F. Jelly, all of whom were summoned by the State. At the trial the evidence of these gentlemen was suppressed by the county attorney although it was demanded by the defense, who claimed that this evidence

was paid for by the State and belonged to the people. The inference that this evidence was not favorable to the prosecution, and for this reason was suppressed, was perfectly legitimate.

The writer, summoned by the defense, examined Knight in the jail just before his trial. Although only forty-five years of age he looked like a man about sixty. He appeared depressed and anxious, but talked willingly and conveyed the impression of perfect sincerity. All that he said was confirmed by the evidence at the trial and was substantially similar to what has already appeared in the history. Particularly worthy of note are the following statements made to the writer: He said his soul was lost ten years ago. At that time he attended a religious meeting and after this meeting was commanded by the Lord to pray in the house. He deliberately disobeyed and prayed in the woodshed, and from that time was doomed to eternal torment in hell. He was so restless under this agonizing thought that he could not keep still and was impelled to wander away alone by himself. He said that at the time of his first residence at the hospital he was used well and he had no fault to find with any one, but the sights and sounds of the place were awfully depressing to him. He said that it was a year and a half before the murder that Mamie first conceived the idea of making him out insane for the purpose of getting him out of the way so that she could associate with another man with whom she had become acquainted at the seashore. He laid no importance upon the fact that the girl had determined to lead a better life. Feeling that she was still trying to place him in the asylum, he followed her to New Hampshire, and exacted a promise from her that she would be friendly. He said, however, that he had made up his mind to kill her if she continued this persecution. He felt it was right for him to take her life, for the facts justified the killing. As for remorse, he said, in reply to a question asked him on this point, that he felt none whatever; that Mamie herself had forgiven him and frequently appeared to him at night as happy and smiling as ever. The murder did not trouble him as did the willful disobedience of the Lord's command to pray in the house ten years ago.

As to his second residence at the insane hospital he told the writer that Dr. Sanborn had tried to make his life miserable and had endeavored to keep his family away from him. When asked

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why the Doctor should desire to persecute him, he said he did not know, but that it was perfectly evident in his looks. He further claimed that he intended to kill the Doctor and had made a slung shot out of a door-knob—all of which was confirmed later by the evidence at the trial. He claimed that the killing of the superintendent under these circumstances would have been justifiable.

In reviewing the history of this case any alienist would say that this man, of decidedly insane heredity, wavered a little mentally at the critical age of puberty; that at 34 or 35 years of age he had an attack of melancholia following heat prostration, and that this attack was never really recovered from, but passed on into a chronic systematized delusional insanity. In other words, Knight's case is one of *dementing psychosis*. The underlying disease process is one of progressive mental enfeeblement. Imperative conceptions, fixed ideas, found easy lodgment in his mind hereditarily predisposed to disease. As is usual in such cases, the higher intellectual processes gradually grew weaker. The judgment, the moral nature, and above all the will-power were early affected.

The first appearance of mental disease was manifested in the imperative conceptions, the fixed ideas. These symptoms persisting, as the history shows for a period of ten years, there followed the usual signs of mental impairment. The power of continuous and successful application became weakened. He was moody and absent-minded. His moral nature, his judgment and above all his will-power were affected. The morbid egoism that underlies the unfounded suspicions; the defective judgment that seems incapable of weighing really important facts, but is influenced by the most puerile and fictitious creations of the imagination; the weakened will-power that is unable to resist the impulses suggested by the disordered imagination—all these phenomena are perfectly apparent to the alienist in the life history of Bradford P. Knight.

The prosecution was skillfully conducted by County Attorney Heselton who argued that his deliberate planning of the murder, his successful escape, his fear of the crowd when arrested and carried to jail all indicated sanity, and more important than all else showed that he knew right from wrong with reference to the particular act in question. The fact that he feared the law, that he

attempted and successfully made his escape showed that he knew his act was wrong in the eyes of the law, and that this was unmistakable evidence of responsibility. It was argued that jealousy was the motive for the crime, and not the so-called fear of being put in an asylum by Mamie and Lizzie, and that what had been called delusions and the depression covering a period of ten years were really the warnings of conscience in a guilty soul; that as regarded the expert testimony it was theory and not fact; that experts can always be produced to go into court and testify one way or the other. On the other hand, the learned counsel failed to explain why he did not produce the eminent experts, whom he had summoned from a great distance to substantiate his own ingenious theory. He still further claimed that the prisoner's coherent conversation and letter-writing, the fact that he transacted business and manifested no marked peculiarities of speech and conduct were unquestionable evidences of sanity. As is usually the case, these arguments had great weight with those whose feelings were aroused by the thought of the brutal and cold-blooded murder of a defenseless and attractive young woman.

The defense was eloquently and ably argued by Hon. H. M. Heath of Augusta, who traced the working of this disordered mind from the time of his attack of melancholia down to the moment of the shooting. He argued that the crime was the product of morbid reasoning, that the mental memorandum made on the old envelope, showing the intention of killing the girl, was not the act of a sane mind; this deliberately written note disclosed the real character of the act; it showed that the man's will-power was weakened by disease and controlled by overpowering delusions.

The charge of Judge Emery is especially interesting because it is a very clear exposition of an old fallacy concerning insanity as a defense for crime. Moreover, this is the popular conception, and because of its erroneousness, deserves the consideration of the alienist as often as it is repeated. According to this view, insanity in itself may not be a suitable defense. The insanity must have proceeded to a certain extent, its ravages upon the mind must have produced certain definite results before it can be admitted as a proper defense; that—as Lord Hale had ruled in the olden times—there was a partial and a total insanity; that partial

insanity, such as occurs in melancholia, did not destroy responsibility, but that total insanity or that which reduced the understanding and the memory to that of the infant or the wild beast was the only form of insanity that could absolutely extenuate crime. Similarly, in the present instance, emphasis was laid on the extent and the degree to which the insanity had progressed, not, to be sure, to the absurd conclusion of Lord Hale, but to one which is fallacious, medically incorrect, and the tendency of which is towards a miscarriage of justice.

Alienists do not criticise the theory of modified responsibility due to partial mental enfeeblement, but they do very justly object to the arbitrary principle, laid down by Judge Emery, that to establish irresponsibility in any case the insanity must have proceeded to the extent of destroying in the individual a knowledge of right and wrong with reference to the particular act. Such a view proceeds from unfamiliarity with mental disease, from ignorance of the way in which insanity affects the higher mental faculties. The theory that *partial* or "medical" insanity is not an extenuation of crime, though acceptable to the legal and lay mind generally, is not satisfactory to the alienist because it does not represent actual facts.

Judge Emery's reasoning is as follows: He says "The word 'insanity' is used in these matters with two significations from the standpoint of the person addressing himself to the question. Insanity in a medical sense, in the sense that it is used and thought of by a physician who is treating disease, means a mental disease, a mind disease, as distinct from a healthy mind; and the medical man who is addressing himself to the treatment of disease looks on and regards the question of whether or not a man's mind is diseased, and, if so, the character of that disease, its symptoms, and so forth—its probable extent and how far it may have progressed; the same as a medical man, perhaps, treating the body would say that a person with a weak heart, dyspepsia or with sundry other difficulties, had an unhealthy body, and yet the body would go on doing work. It might be that a man drawn as a jurymen might be pronounced by a physician not to have a sound body; that there would be some bodily defect; and yet the man need not be excused from jury duty. It would have to be of such a character as would seem to disqualify him from sitting

as a juror. But we have to also consider it in what is called the legal sense. Insanity means unsoundness. . . . In a legal sense when we are considering men's responsibility for their acts, we come to the question of the legal meaning of the term 'insanity'—what meaning that has in law. It means something more than in the medical sense. It means a mental disease of such character and extent as for the time to destroy mental responsibility. Hence you see that a person may be in the eye of a doctor medically insane, that is, he may have a diseased mind, and yet not be insane in the legal sense; just as the body may be in a medical sense unsound and yet practically sound. A man might have eczema on his arm and a physician would say that he was not perfectly sound in the body, and yet he could go on and do business with practically no inconvenience. The question we are to consider here is not simply whether this man at the time of this killing was what we call medically insane, that is, had a diseased mind from the doctor's point of view, but whether he was unsound in the legal sense of that term—what the law understands is insanity."

He says still further: "One may be criminally responsible, though he is suffering from some mental derangement. The possession of sound faculties and full vigor of mind, unimpaired by disease or infirmity, is not required as a condition of criminal responsibility. The law recognizes that the human mind has varied and distinct powers and functions, such as affection, instinct, reason, will, imagination, memory, and so forth; that some one or more of these faculties may be diseased or disordered while the others continue unimpaired and undisturbed. One may suffer from some mental delusion or infirmity and yet in all other respects be rational, and, therefore, responsible.

"On the other hand, to make out his case he is not required to prove a state of idiocy—a state of complete mental imbecility. He is not required to prove that he is a raving maniac; not required to prove that his mind was all gone, all upset. Nor is he required to prove that a majority of the faculties of his mind were affected, nor need he show that he could not do any business, nor need he show that this thing was continuous or of long duration."

"How far must the mental disease go," he inquires, "in order

to establish irresponsibility?" In accordance with the rule of law in the State of Maine, he says: "To establish the proposition that he was insane in the legal sense, and, therefore, not criminally responsible, the respondent must prove that at the time of doing the act he was afflicted with mental disease of such character or extent that he had not then the mental capacity sufficient to distinguish between right and wrong as to the particular act he was doing; or, in other words, that he had not knowledge, consciousness or conscience enough to know that the act he was doing was wrong and criminal and one for which he would be liable to punishment; or, in still other words, that he was so afflicted by mental disease as not to know the nature and quality of the act he was doing; or, if he did know that much, he yet did not know that the act was unlawful and wrong. If he does prove that much, he establishes the proposition that he was legally unsound—insane in legal sense."

"Again, whatever was the character or extent of his mental disease, if any he had, if he yet had sufficient mental capacity to understand and know the situation, to understand and remember the nature and quality of the act he was doing, that it was unlawful and wrong, he was not then insane in the legal sense of that term. He must show then, first, the existence at that time of some mental disease. Secondly, that the disease was of such character or extent that it deprived him at that time of the usual mental capacity necessary to understand the nature and quality of the act he was doing, its character and consequences; in other words, the mental capacity to distinguish between right and wrong as to that particular act. He must show the connection between the mental disease, if there was one, and this unhappy result, by the reduction of his mental capacity to the state which I have described. If both are shown, namely, the existence of the mental disease, and its extent to the point I have described, then he was insane in the legal sense and the killing was simply the unfortunate result of mental disease; otherwise, the killing must be held to be the result of the man's vicious acts, for which he is responsible."

To prove that in the case of Bradford P. Knight the mental disease had not progressed to this particular point of destroying a knowledge of right and wrong with reference to the particular

act, Judge Emery called upon the jury to especially note the fact that he conversed with people upon ordinary topics, that he transacted routine business, that he carefully planned the crime, that he successfully eluded arrest and, throwing people off the track, escaped to his own home—all of which conclusively proved, so the judge said, that the prisoner knew his act was wrong and that he would be punished for it.

Thus, the main factors in Knight's case were relegated to the background, and symptoms were emphasized to the jury's mind, which are of minor importance and have little significance in a dementing psychosis of the type of this particular case. Every alienist knows that coherent conversation, transaction of routine business, the planning of murder or of ingenious and successful escapes, are wholly consistent with advanced mental disease and complete irresponsibility.

The jury returned the only verdict possible under Judge Emery's very explicit charge, viz., guilty of murder in the first degree.

No sentence was imposed. After his return to the jail, upon a written request from the sheriff that Knight needed medical care, Judge Emery issued the following order for his transfer to the State hospital for the insane: "Upon the foregoing application, it has been made to appear to me, that the said Bradford Knight may be now so far diseased in mind, as to require medical treatment in some hospital for the insane, and it is, therefore, *Ordered*, that the sheriff of said county transfer the body of said Bradford Knight to the State Hospital for the Insane in Augusta, and that the Superintendent of said Hospital and the officers thereof receive and care for said Bradford Knight, until further order of some Justice of the said Court."

Before the cause was tried and the charge was given, the counsel for the defense requested the presiding judge to instruct the jury that if the respondent's mind was diseased and as a result his will-power was so affected that he could not refrain from committing the act, the act was the product of his mental disease, that then he would not be responsible even though he could distinguish between right and wrong as to the particular act, and even though he was conscious that the act itself was wrong and punishable.

The counsel for the defense still further requested that the judge instruct that capacity to distinguish right from wrong as to the particular act does not necessarily imply responsibility; that the important thing to ascertain is whether the determination to kill was the product of the mental disease, and if so, whether the mental disease had progressed so far as to render the prisoner incapable of refraining from committing the act, and that under these circumstances the prisoner would not be responsible even though he did know that the act was wrong.

The counsel for the defense claimed that the memorandum written by the prisoner just before the murder and other facts tended to establish the issues submitted in these requests to the presiding judge. Because they were declined and because the jury were instructed distinctly to base their findings on the fact as to whether the prisoner at the time of committing the act knew that the act was wrong and punishable, the counsel for the defense entered exceptions, which were allowed by Judge Emery, and the very interesting points raised as to what constitutes true responsibility in the insane mind will be argued before the Bench at the next law term.

This furnishes a test case, as far as future rulings in the State of Maine are concerned, wherever insanity is raised as a defense, and will be watched with much interest by all medico-legal specialists. If the ruling of Judge Emery is to prevail it is difficult to see how justice can be secured for any but the idiot, the extremely demented, or the raving insane.

The fact is, insanity and irresponsibility, or at least modified responsibility, are nearly if not quite synonymous. Certainly it is true that no form of insanity exists in which there is not modified responsibility. Not only does the insane man reason from wrong data, but the power to see things in their proper relationships is impaired. His mental perspective is distorted. The inability to make rational comparisons and to exercise the power of choice are the earliest symptoms of mental disease. The capacity to distinguish right from wrong either in the abstract or in any particular case is not lost until the insanity is far advanced. Such loss is one of the later manifestations of pronounced functional and organic brain disturbance. To arbitrarily state, therefore, that responsibility depends upon a knowledge of right and wrong is decidedly unscientific.

In his charge Judge Emery particularly instructed the jury that it is not necessary for the insanity to have proceeded to the extent of dementia or idiocy, or profound confusional conditions. Unfortunately for his theory, these are the only forms of insanity in which a knowledge of right and wrong is obliterated. In all the reasoning or partial insanities this knowledge is unimpaired. It is the will-power that is damaged, and not the power to distinguish right from wrong either in the abstract or in any particular case. The instruction to the jury is, therefore, erroneous because it does not represent psycho-pathological facts. Each case must be especially studied with reference to this particular point; hence the absurdity of laying down a law which is incompatible with the clinical history of mental disease, and the necessity of submitting the facts to the examination of experts. In this particular case the experts on either side would have undoubtedly agreed as to the man's irresponsibility. Unfortunately, the conclusions of the specialists summoned by the prosecution were suppressed and the opinions of those summoned for the defense were not allowed the weight to which they were entitled, and the prisoner, unquestionably insane, was convicted on unscientific grounds.

The theory that partial or "medical" insanity necessarily or usually implies responsibility is based upon fallacious reasoning. One error, as has been so often stated by alienists, lies in the fact that partial insanity is not so limited in its effect on mental operations as the lay mind conceives it to be. Limited delusions and isolated morbid ideas may be only a small portion of the symptomatology. They are noticeable phenomena, but must not be considered to represent all that is morbid. Because the insane person manifests only one or two delusions, talks coherently and intelligently and transacts business correctly, it does not follow that his mind is sound on all other relationships outside the one or two prominent delusions that he may exhibit. Their unfortunate possessor is usually damaged in all the higher mental processes, such as the judgment, the moral perceptions, and, particularly, in the exercise of the will-power.

While apparently sane on all other topics and able to talk connectedly on every-day matters and transact his routine business, he may be so dominated by certain prevailing ideas as to be

wholly unable to resist certain acts, because in his own disordered mind they are justified by the facts in his individual life. These are the insane people who are most dangerous. It is not the turbulent maniac, full of incoherence and noisy destructiveness, but the quiet secretive paranoiac, who moves around amongst people in his daily avocations, who may spread destruction in his path. Beware how you tread upon the high explosive of his disordered brain! The attempt to circumscribe any form of insanity and call it partial is as unscientific as it is unsatisfactory. Every species of insanity is mental disease and the attempt to draw arbitrary lines around any form of mental disease, and to say that it shall be limited by this or that symptom is not sustained by what we know of mind. The functions of mind are too interdependent to be so circumscribed. The analogy between a disordered mind and a diseased member of the body is not a happy one. Eczema of the arm and disease of the brain are two morbid conditions so utterly unlike as not to admit of any comparison and would hardly have suggested themselves to any one but a non-medical person. While it is true that a local skin disease on the arm does not incapacitate its possessor from his daily occupation, it does not follow that a functional or organic disturbance of the brain does not interfere with all the higher mental processes that depend on cerebral activity for their manifestation.

The man who is, as the lawyers say, "partially" insane may know that his act is wrong in the eyes of the law and a punishable offense, but in his disordered reasoning he will argue that the facts justify the deed and it will be impossible to convince him to the contrary. So distorted is his perception of the proper relations of things, so overwhelmingly exaggerated is his own morbid egoism, that he will feel impressed with the justice and absolute necessity of his act and will usually assert that, when others know all, his conduct will be sustained. The reasoning of the partially insane mind is nearly always utterly inconsistent. But the laity usually commit the blunder of expecting and insisting that the partially insane mind will reason exactly as does the sane mind. In this case the suspicion that the superintendent of the asylum was suppressing his mail and keeping his family away from him justified his attempt upon his life, just as did the firm belief that Mamie was talking about him and trying to place him

in an asylum, in order that she might consort with another man, justify him in taking her life. He might understand ever so clearly that the act was wrong in the eyes of the law, but the feeling of its absolute justice in his own particular case was so great that he was compelled to commit the deed no matter what the consequence might be.

The real test of responsibility, then, is not a knowledge of right or wrong with reference to the particular act, but, as Dr. C. F. Macdonald has so well expressed it, "Knowing the right and knowing the wrong, has the man the power to choose the right and avoid the wrong?" It is not a question of knowledge, but of power to choose between two courses of action. If he has not such power, then his act is the product of his disease, and he is not responsible.

In every case of suspected insanity especial effort should be made to ascertain whether the criminal act is the result of morbid reasoning or is the product of mental disease. If the act is the outgrowth of disordered reasoning, if the man's judgment is so enfeebled that he cannot properly estimate the natural relations of things, if his will-power is so enfeebled that he cannot resist the powerful pressure from within that impels him to the deed, then the act may be said to be the product of his disease and is not criminal, no matter how clearly he may understand the nature and quality of the act, whether right or wrong in the eyes of the law, or how coherently and intelligently he may converse on ordinary topics, and plan and effect an ingenious escape from detection.

Finally, in view of all that we know of the operations of the insane mind, it is greatly to be desired that the simpler ruling of Chief Justice Doe, in the famous New Hampshire case of *The State versus Pike*, may become more prevalent, wherever insanity is raised as a defense. The learned judge ruled that there is no legal test of insanity. Each case must be decided on its own merits. The basic facts are that insanity is a mental disease; the product of mental disease cannot be a crime; tests of mental disease are matters of fact; and whether the defendant has a mental disease, and whether his act is the product of that disease is a question of fact for the jury to consider. This is good law and sound medicine.

THE STATE OF NEW YORK AND THE PATHOLOGY OF INSANITY.¹

By P. M. WISE, M. D., of New York,

*President of the New York State Commission in Lunacy; President of the
American Medico-Psychological Association.*

The leading chapter in the century's history of the care and treatment of the insane in America will be the humane and progressive record of the Empire State. From the ward for lunatics in the New York Hospital in Colonial days to the recent "State-Care Act," New York has been abreast if not foremost in this eleemosynary duty to its dependents, as the sentiment of the time has indicated. The tardiness in providing for all the dependent insane by the State was more than compensated by the imperial measures which carried the State care policy into effect. The great movement was not a revival of sentiment, supported by the emotions, creating a name, and then dying from inanition. It came to stay and it has been sustained faithfully, becoming a fixed public burden, and in this closing year of the century having no real opponent in the government of the Commonwealth. "State care" has not been a name without other merit. Its purpose has been realized in a remarkable degree. Remarkable in the fact that it is the only instance in the history of the States where the name has not been merely an unrealized claim. There is to-day in the State of New York no acknowledged dependent insane person in an almshouse, penitentiary, jail, reformatory, or any place of custody other than a State hospital. Can this claim be made elsewhere? If so it is a glorious example of a fearless State Government following the precedent established by the Empire State. It is the antithesis of the shameful, cowardly, miserly policy of a wealthy State establishing almshouse treat-

¹ Read before the American Medico-Psychological Association May 22, 1900.

ment of the insane by law; an example which should make its citizens responsible for it hide their faces from the Sun of Righteousness, who taught the doctrine of mercy and charity. "Inasmuch as ye have done it unto one of the least of these, my brethren, ye have done it unto me."

In carrying into practical effect the provisions of the State-Care Act, the supervisory body—the State Commission in Lunacy²—found it expedient to establish a basis of cooperation between all the hospitals and institutions in its department. It was not only expedient but it was essentially requisite for the attainment of the great end in view—the most effective treatment and care of the insane in the most economical way. In addition to cooperation there must be a certain degree of uniformity in method and administrative practice. Not, take notice, in medical practice, for in this there was accorded the same freedom from interference and allowances which existed theretofore, or which now obtains elsewhere. If uniformity of therapeutics, personal treatment, classification or research, resulted in some degree, it came from association and not from direction. I can fearlessly appeal to the representatives of the department, Superintendents of the State Hospitals, brother-members of this Association, who I am proud to refer to as the best representatives of psychiatric practice in New York, for a confirmation of this statement. It was the policy and practice of my predecessor, as it has been of the writer, to allow the widest scope within the limits of safety and the welfare of the patient, to individual effort and experimentation. Otherwise, progressive medicine would be a name only and dry rot an actuality. Thus, cooperation and a scientific franchise to hospital physicians has created a psychiatric practice in our State Hospitals which is unsurpassed, and which, I believe, will stand the test promulgated by a versatile neurologist, whose peerless imagination has been the delight of thousands in many editions and seven translations. However, it is well known that the prophetic and delightful parable painted in entrancing words by this masterful brother, was an actuality contemporaneous with his prophecy.

In investigation of the causes of insanity, in establishing the

² Hereafter referred to as the "Commission."

morbid anatomy of the brain, in pathological departments of hospitals for the insane, and in creating a special literature, New York has been a pioneer. The AMERICAN JOURNAL OF INSANITY, now in its fifty-sixth year, is the product of the Utica State Hospital in its earliest history. In his annual report for the year 1868, Dr. John P. Gray says: "I have long been convinced that the extensive field afforded by this institution for pathological investigation should be cultivated more thoroughly than could possibly be done by the ordinary medical staff." He called to the attention of the managers the importance of employing a professional man of special attainments and skill in the department of pathology, to make microscopic examination of the nervous tissue, and to test the value of instruments of precision for diagnosis, "and such other pathological researches as might be deemed valuable to medical science and the public generally." In his report four years later, he gives a résumé of the work accomplished which appeared of sufficient importance to suggest legislative authority. A bill was unanimously passed the same year creating the position of special pathologist and providing for the equipment of the laboratory, which was accomplished with the aid of Dr. J. J. Woodward, then assistant surgeon, U. S. A. The following year Dr. Gray reports, "the results so far attained in this field of special investigation have fully justified the expectations we had formed of the value and importance to medical science and the public interests in recommending some years ago the organization of this department of research." There must be a number of those present who recall the fine technical work exhibited by Dr. Gray at several meetings of the Association about twenty-five years ago, as the product of the Utica laboratory. The experience at Utica and especially the causes which led to the decadence of the laboratory and finally to its extinction are worthy of consideration at this time, as they apply now, as they ever will, a lesson showing the mutual dependence of one department of medicine upon others in the scientific work of hospitals. The special pathologist at Utica for the first three years was a gifted physician, Dr. E. R. Hun. It was his work which created the law establishing the laboratory as a permanent institution. He was succeeded by Theodore Deecke, a philosopher but not a physician, a master of technic

but ignorant of symptoms, a man jealous of his department, possessing scientific attainments of high order, but too little sympathy with the expression of insanity as witnessed constantly by the physicians of the staff. His work was admirable, but inanimate. He could show the morbid conditions, but could not relate them with the clinical facts, and as a consequence his work became a mechanical process and died from the same causes which will ever destroy values by the separation of clinical and pathological research. It is a lesson which should have been heeded. The work at Utica, however, was sufficiently impressive to mold into the organic laws of the four later State Hospitals, provision for a special pathologist. The privilege was accepted in only two of the hospitals and only for a short period. The lesson taught at Utica was undoubtedly a restraining cause, and it was rather to the strict and almost to the prohibitive separation of the pathological and clinical departments that the other hospitals united all medical work in the regular medical staff. Some admirable researches were conducted by members of the staff, which in practical value exceeded all that was accomplished at Utica during the existence of the special department. Small laboratories of great comparative merit were earnestly worked by some of the hospital physicians from time to time. Had the minor and technical difficulties been overcome by capable instruction in these instances, the results might have been what we hope for but have not seen. The difficulties that are encountered by the hospital physician who wants to unite his clinical work with pathological research are almost insurmountable. Technic, in the interval between college and the evolution of a fixed point in view, leaves him stranded and he must begin at the bottom for his preparation. By the time he is prepared for good work there may come promotion and burial in administrative duties. The work he has done may be too immature for application, has failed of record, and is lost to his successor. Here and there may be some brilliant discovery in its incipient stage, but without persistent research it is soon buried in a mass of detail and lost to view.

With the cooperative spirit which was the hematin of the life-blood of the State Care Act, there was created the desire to unite pathological research, then in a more or less active stage in a

number of the State Hospitals, in a scientific center. The initial proposition led to quite active argument and no little opposition grounded on common sense and experience. Perhaps the most forceful argument against this movement—and experience has actually proved it prophetic—was the belief and the claim of several superintendents that centralization of research in a great central laboratory would dampen the ardor of individual hospitals, and especially of individual members of the medical staff, who would be debarred from working on original lines without the approval of the central laboratory or the supervising pathologist.¹

¹ From the Eighth Annual Report for the year 1894 of the St. Lawrence State Hospital. "Closely associated with the clinical study of insanity is that of pathological and etiological research. It is maintained that these questions, mighty in themselves, could better be assigned to some separate department of the State service; and this is undoubtedly true if the State desires to add to its eleemosynary work that of scientific investigation. It may well be considered doubtful if the State Government will look favorably upon this additional burden. It is also questionable if the results that would be obtained would far exceed previous efforts in pathological work carried on in a distinct department at one of the State Hospitals at large expense to the State. The usefulness of a central (or common) laboratory for all the State Hospitals will depend wholly upon the personnel of its organization, and the same chances will thus have to be taken that each medical superintendent assumes in the appointment of his medical staff officers, with less chance of correcting errors. The temptation to make a central laboratory useful for the community in which it is situated, and for the individual in its organization, to the exclusion of distant institutions, will not always be resisted. It will also reduce, if not dispossess, the individual hospitals of laboratory work, which is one of the strong inducements to young medical men to engage in hospital practice for temporary periods.

"It is well to consider also that the best results in science have not emanated from public and paid work, but from voluntary efforts and frequently from obscure sources. The brains of men cannot be prodded to produce, like the soil, but must be stimulated by an interest that needs more than a departmental service to maintain. The technical work of a central laboratory may produce some beautiful results, as a fruit of exquisite technic, but conclusions based thereon will be thoroughly worthless, except in a combined study of the clinical aspect of the case. The physician who studies the cause and indications of disease from frequent observation of the patient is the only competent person to reach conclusions from the morbid anatomy that will be of any value to the human

It is regretted that the discussion on the merits and demerits of centralizing research, which preceded the creation of the Pathological Institute, failed of record except in a few instances. The remaining impression of its astuteness, its prophetic foresight and the results which might reasonably be anticipated, would make it eminently fitted to supplement this discussion. At that time and for several years, the hospitals had accomplished much practical laboratory work chiefly related with clinical problems, although but little of the finer technical work had been attempted. Whatever was accomplished was wholly due to the praiseworthy spirit of research of individuals who would sacrifice selfish and personal interests and comforts to attain the end in view; and it may be recognized as a rule with no exceptions that from such material has developed the scientist of the class who has made pathology what it is to-day. The history of pathological advancement shows that it has not been the machinery and organization created with methodical acumen from an unlimited treasury to which is due original discoveries, but to the solitary individual, whose very needs create a stimulant, who, perhaps, in his earliest efforts before the possible demonstration, would have been mocked by a scientific center into discouragement and silence. The inception of revolutionary discoveries seems possible only to the isolated worker who ignores and defies skepticism, and who is independent of cooperative assistance. A Koch, a Pasteur, and a Lister would never have been known if their primal theories had required for elucidation the approval of some directing scientist clothed with autocratic powers. Hence, it was maintained—and correctly, I believe—that centralized research would retard if not give the death-blow to original individual efforts, unless they accorded with the "menu" of research in the central office. It is not held, I desire to emphasize, that such untoward conditions necessarily

race. . . . In the functions of chemistry, bacteriology, and microscopy, applied to clinical examination a central laboratory can give no aid except as an instructor. It is doubtful whether a central laboratory will be useful, except as a coadjutor to the hospital laboratory; and it is far better to maintain the latter in a state of efficiency, increase the medical force sufficiently to permit a greater measure of pathological work, and keep the several departments of disease research together.

"Peter M. Wise, M. D., Medical Superintendent."

ensue upon centralization, but human tendencies are universally alike and the laws of action require an exception if results other than those described are realized. My observation, at least, of the short experience with centralized research in New York sustains the claim that the State Hospital laboratory will cease to be a coadjutor of the central laboratory, as first designed, unless cooperation is made a requirement by the Commission.

In the fifth annual report of the Commission, for 1893, the subject of a pathologist is referred to in the following words: "The Commission would recur to the importance and desirability of appointing an experienced and competent pathologist who should act for all the hospitals of the State. . . . The Commission now has under advisement a proposition for the appointment of such a pathologist as soon as his selection and the arrangements for a suitable laboratory can be determined upon."

The discussion by the State Hospital Superintendents of the action contemplated by the Commission resulted, finally, in a united sentiment which was expressed in a resolution assenting to and approving of "the appointment of a pathologist of recognized reputation and qualifications, to be located in the city of New York, and preferably to be a teacher of pathology, the expenses to be borne by equal monthly payments from the funds of the several State Hospitals."

In the sixth annual report of the Commission, for 1894, it recommended "that provision be made for the establishment and maintenance of a pathological laboratory or institute, under the direction of an accredited and competent pathologist, which shall be a department of the State Hospital system, to be maintained primarily for the State Hospitals, but incidentally for the benefit of all the institutions for the insane, as well as for such members of the medical profession at large, especially alienists and neurologists, as may desire under proper restrictions to avail themselves of its facilities in their investigations of the anatomy, physiology and pathology of the brain and nervous system." It will be observed that the Commission had in view primarily the benefit of the State Hospitals. The laboratory was also to open its doors to all members of the profession desiring to avail themselves of its facilities. This was thoroughly impracticable as might well have been foreseen, for it gave an opportunity to

divert the use of the laboratory to personal expedients. The director was fully justified in ignoring this proposed function.

In the report for 1895, the Commission announced the creation by statute of the "Pathological Institute of the State Hospitals," to be located in the city of New York, for the reason that besides being a medical center, there was located within a radius of sixty miles more than two-thirds of the insane in the State. It repeats the declaration that the Institute is established primarily for the benefit of the State Hospitals and "also to provide instruction in brain pathology and allied subjects for the medical officers of the State Hospitals, and to other members of the medical profession who may desire to avail themselves of the advantages afforded by this department."

During the year 1896, the Institute was located in the Metropolitan Life Insurance Building on Madison Square, and occupying fully the front two-thirds of the sixth story at an annual rental of more than six thousand dollars. The contention was that the location most central to the general hospitals, having an abundance of unobscured light, and sufficiently cool to permit work to proceed continually during the hot season was essential. In the following report (for 1896) the Commission announces the equipment and organization of the Institute, and sufficient progress "to demonstrate the wisdom of centralizing in one department the scientific investigations of all the hospitals in the yet obscure fields of pathology and causation of insanity." It is also here announced for the first time that the Institute is not to be confined to the study of pathology to problems of insanity exclusively, but that investigation was to be comprehensive and unite all the branches of science which could be brought to bear upon the scientific study of mental disease. The Institute therefore established the departments of normal histology, pathological histology, cellular biology, bacteriology, physiological chemistry, psychology, anthropology and comparative neurology, and the persons in charge of these several departments were known as associates, the whole being under the supervision of the director. There was also an associate who directly assisted the director in the administration of the Institute and a corps of lay employees, known as librarian, archivist, preparator, indexer, accountant, stenographer, janitor and janitress, several having

assistants. The expense of maintenance for one full year, exclusive of equipment, but including rentals, approximated forty thousand dollars.⁴ The attention of legislative committees having the preparation of appropriation bills was directed to the expenditures for the Institute by the financial statement required of the Commission. Fortunately, until 1899, the appropriation for the State Care of the Insane had been made by a direct tax on the people, collected as other State taxes, and the resultant was at the disposal of the Commission, under certain statutory restrictions. In 1899 this was changed to a definite appropriation included in the general tax levy, and precise sums were appropriated for the specific purposes of the department. In this appropriation, and in spite of the earnest protest of the President of the Commission, a definite sum was named for the Institute, although quite sufficient for its purposes. To obtain this, it was necessary for the Commissioner to appear before the respective committees of the Legislature, and state with all the solemnity of an oath and upon his honor as an upright public servant that the amount asked for was requisite, that no further economies were possible, that the Institute was being conducted solely in accord with the purposes of its creation, and that the Commission vouched for the proper and most economical expenditure of the moneys. The question being wholly a professional one, the lay commissioners turned the responsibility over to the medical commissioner, as a matter upon which they were incapable of judging. There are certain periods in man's experience where ignorance is bliss unalloyed.

It is not my intention to criticise the development or the administration of the Pathological Institute. I should be pleased to see its scope widened beyond the present, and comprehensive enough to apply all the sciences to the great purpose in view; but I am constrained to hesitate when the burden of State care is overburdened to carry on in a proper manner the elementary needs of the insane, to recommend its increase by the addition of scientific research not pertinent in a broad sense to that department of charity. During the summer of 1899, the Institute was practically vacated for the three hot months, and although the pro-

⁴The appropriation for the year 1899 was thirty-six thousand dollars.

fessional element of the organization may have continued research elsewhere, it was an incident which excited inquiry and criticism, in great part directed at that Commissioner who vouched for the economical expenditure of the appropriation. The director was appealed to for an explanation and thenceforward until the present moment a constant effort has been sustained to determine how far and in what manner and to what purpose is the State justified in maintaining scientific institutions. If the Institute was created primarily for the benefit of the State Hospitals, it has failed in its purpose, for the State Hospitals have been a small element in its consideration, and for reasons promulgated by the director, in an exposition of the methods of research commended by him.⁸ He has set forth many truths in a brilliant manner, but he has failed to take into full account the worth of clinical methods and their union with pathological research; and this is the criticism from the hospitals. The critics in the profession at large are numerous, but one class can be cancelled as having personal ends to serve. Others complain of the Institute as a close corporation, although maintained by the people for the people. They want a manifestation of the educational feature which was announced upon its establishment.

After a serious and painstaking consideration of the several matters which seemed to form a proper basis for inquiry, the Commission invited Dr. Edward Cowles and Dr. G. Alder Blumer (members of this Association) and Dr. Councilman of Harvard University to examine the scope and methods of the Institute, and report as to their value, the justification of the department of insanity in maintaining so comprehensive a scheme of research and the degree in which the present development of the Institute realizes the purposes of its creation. The questions submitted to this committee embodied the criticisms by the medical profession which were current during the past two years or more.

The speaker represents the unanimous sentiment of the Commission in stating that the sole motive actuating it in the inquiries thus far made to formulate a basis of justifiable procedure for the

⁸ "Correlation of Sciences in the Investigation of Nervous and Mental Diseases." *Archives of Neurology and Psychopathology*, Vol. I, 1898; by Ira Van Gieson, M. D.

Institute, is the enhancement of the purposes for which the Institute was established—the spirit of the organic law—and to mark the border lines of “correlation” with the allied sciences, beyond which the State or at least the department of insanity should not go. Any other motive is foreign to the Commission, and any other claim is baseless. In the face of a determined opposition in the last Legislature to cut out the appropriation entirely, the Commission made as strong an appeal as it was possible to make, or ever has offered, for the continuance of the Institute; but only partially succeeded, by receiving an appropriation of twenty thousand dollars, and even this is hampered by an embarrassing provision which prohibits any expenditure for rents. I was informed by the chairman of one of the legislative committees, that the arguments offered by the nearer representatives of the Institute, were almost sufficient to defeat the appropriation. The ordinary legislator is not capable of appreciating scientific arguments, and is better moved by personal assurances of supervising officials. Preachers of science are quite out of place in legislative halls.

There can be no denial that the Pathological Institute has accomplished some excellent work, and has in course of inquiry questions of prime importance to psychopathology. It is to be regretted that all research it has instituted cannot go on to completion, even should it call for the application of labor and material not in the jurisdiction of the department. The question is evidently not whether the investigations of the Institute are of value, but whether it is properly maintained by the State, and especially by the lunacy department. Furthermore, whether it is accomplishing all the functions for which it was created. The Commission has been convinced by the most trustworthy authority, that these questions bear a negative phase that calls for early and radical changes in policy. It is sincerely to be hoped that the present organization may be modified by cooperation of the director to harmonize with the convictions of the Commission and continue the more valuable researches in progress to the greatest possible degree; but that remains an open question. The teaching function should become a greater feature, a prime feature, perhaps. It is the conception of a Commissioner that the work of the Institute might be prosecuted in two departments,

although under one director—*teaching* and *research*—each of which should be conducted by an experienced physician pre-eminently qualified.

The report of the Committee which served the Commission as well as the Institute, in its impartial investigation of the latter, is appended herewith (Exhibit A), but the time allotted for this paper does not allow reading it without a suspension of the rules. This report shows with what care all issues involved both in inception and development were considered, and the Committee has rendered an excellent service to the department, to the State and to science. For the scientific world is watching the experiment undertaken by New York, and abnormal tendencies would surely disrupt it in time; so that any effort which aids in restoring the Institute to a normal or appropriate standard, renders an invaluable service to science.

I regret that it is not possible to announce at the present time the final determination of the Commission. It has endeavored to cooperate with the director to conform the future of the Institute to the funds available, and the requirements of the service, scope and organization which in gross have been determined by the late inquiry but thus far without avail. A pathological department for the State Hospitals which is not administered in harmony with the State Hospitals, and subject in some degree to their respective requirements as interpreted by their Superintendents, is quite impossible as well as inappropriate. If the State desires to maintain a department of pure science, for science only, the medical profession in New York will cry Godspeed in one voice, and loudest of all the psychiatrists, but for the sake of all peaceful principles it should not burden the harmonious, hard-worked, conscientious and methodical lunacy department with it.

Exhibit A.

NEW YORK, February 5, 1900.

To the State Commission in Lunacy, Albany, N. Y.

Gentlemen:—Pursuant to appointment by the State Commission in Lunacy, your Committee to report on the work and scope of the Pathological Institute of the New York State Hospitals met in New York City on February 3, 4 and 5, 1900.

Your Committee began its work by considering the history of the Institute, as contained in the reports of the Lunacy Commission and elsewhere, to the end not only that it should fully apprehend the purpose of the Legislature and the Commission in its foundation, but that it should also determine the degree to which the Institute had departed from that original and avowed purpose. It seems clear from the recommendation of the Commission in its Third Annual Report, for 1891, p. 272, that "a special pathologist for the use of all the State Hospitals" be appointed; and from that of the Sixth Annual Report, for 1893-4, p. 58, that the State should establish and maintain "a pathological laboratory or institute, under the direction of an accredited and competent pathologist which shall be maintained primarily for the State Hospitals;" and from the further suggestion in the Seventh Annual Report, for 1894-5, p. 104, that the proposed department of the State hospital system should "provide instruction in brain pathology and other subjects for the medical officers of the State Hospitals;" it seems clear to your Committee that the intent of the Commission was that the Institute should be a handmaid of the hospitals, and subserve their needs in all matters pertaining to the scientific aspects of the work, especially in the domain of pathology and pathological anatomy in close alliance with clinical observations and research.

Your Committee appreciates the fact that the Institute in the organization of its work must necessarily have been given freedom to develop it gradually, and experimentally in some respects; but, while recognizing the excellent quality of much of the work that has been done, which has received high and authoritative commendation, the committee thinks that the Institute has failed to fulfil the specific purpose for which it was established. Instead of undertaking the problems of mental pathology, in practical conjunction with the several hospitals, it has widened the field of its operations on the basis of the federation of the medical and biological sciences under the leadership of psychology. It has given too great prominence, in thus occupying the debatable ground of speculation, to the deduction of theories rather than to the study of the facts of science, on the principle that the work of the psychologist can explain living phenomena better than the pathological anatomist, provided the psychologist has the general

knowledge of the medical sciences. Your Committee approves academically of the correlation of the sciences, but believes that the attempt thus to correlate them is a departure from the function of the Pathological Institute.

It is the opinion of the Committee that the failure, from the point of view of the State Hospitals, has been due to too great diffusion of effort, whereas the aim from the beginning should have been to establish closer relations between the clinical and pathological aspects of the work. In a word, the function of the Pathological Institute of the State Hospitals is not the correlation of sciences but rather the correlation of the clinical needs of the physician with science. No estimate of these needs can leave out of consideration the duty of the State of New York to make adequate provision for instruction of the highest order for those who are called upon to minister to the insane, her dependent wards. As the State in its wisdom has taken wholly under its charge the care of the insane, their treatment and the use of clinical opportunities, these latter should be utilized in training to the fullest possible extent. The data of the Hospitals is the material upon which the Institute should do its work. It seems to your Committee that it cannot be too strongly insisted upon that the teaching function of the Institute must ever be its warrant for existence and a generous State support. Research work upon the problems of insanity would naturally follow the carrying out of proper methods of instruction and cannot be successfully pursued without it.

The present Institute, your Committee believes, has taught methods not matter. If as a laboratory it had given the physicians in the service the opportunity to obtain accurate knowledge of the nervous system, the necessity for expansion would have been felt more and more in the direction of the clinical study of insanity. Such facilities could be better afforded in a central laboratory that should be in a closer contact with a State Hospital than is possible in its present location; they should include short systematic courses of instruction to small classes of officers from the medical service, detailed in turn for this purpose from time to time, with the subsequent guidance of their work in the Hospitals. Such an arrangement would permit an appropriate coordination of the clinical with the various other

problems, pathological, psychological, physiological, chemical, etc., that present themselves for solution, and thus furnish the natural stimulus of scientific work and promote the steady growth of a professional spirit. It is believed that, under competent guidance, such a laboratory, if it were connected with a small hospital to provide a sufficient variety of cases of insanity, would become a school of clinical psychiatry that would ultimately fulfil the great purpose that the Legislature and the Commission had in view in establishing the present Institute. Your Committee would therefore summarize its conclusions as follows:

1. The Pathological Institute should be maintained, but reorganized on a basis that shall have systematic teaching as its main function.

2. It should teach the fundamental principles whose study and application must lead to the clinical, anatomical and chemical research necessary for advancement in the curative and preventive treatment of insanity.

3. It should have as its director a physician who has had a training in clinical psychiatry, besides being a competent pathologist.

4. It should be located on property of the State, in a building of its own, as near to the metropolitan medical schools as is practicable.

5. As an essential of its teaching function its building should adjoin, or be a part of, a small hospital for the insane for the reception of acute cases and others, appropriate for investigation.

6. Entrance into the medical service of the State Hospitals should be conditioned upon previous training in the Pathological Institute.

Respectfully submitted,

(Signed)

EDWARD COWLES.

WM. T. COUNCILMAN.

G. ALDER BLUMER.

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SUICIDE AND ITS INCREASE.

By G. STYLES,

Union City, Michigan.

Si quis impatientia doloris, aut tedio vitae, aut morbo, aut furore, aut pudore, mori maluit, non animadvertatur in eum; or as the translation would read: "If anyone through grief, tedium of life, disease, insanity or shame, choose suicide, he shall not be censured."

Thus spoke the civil law, as the Pandects inform us,¹ nearly 1,400 years ago. This view is a reflection of the Stoic philosophy, which now reappears in the closing years of the nineteenth century and seems to have an increasing number of adherents—that as every one's life belongs to himself, he has a right to do with it as he chooses—and thus a wrong application of a familiar principle is made to do duty as a logical sequence.

In the same spirit, Seneca declared, that the greatest favor the gods had bestowed on man, is the power to take his own life. So Cicero² says, that it is living according to nature in a wise man to take his leave of life when he is in the midst of abundance, and that he is a fool to prolong it if he is miserable. He continues: "For as I have a right to burn my own wood, and cut my own purse, I may deprive myself of that life which belongs to me."

Laertius makes Hygesias say that the condition of our own death, as that of our life, ought to depend upon ourselves.

When the Romans complained of the hard things in the world, Bojocalus³ replied: Why complain of the world? It detains thee not. If thou livest in pain, thine own cowardice is the cause. There remains no more to die, but to be willing to die.

Seneca says: "Nature has ordered only one door into life, but a hundred thousand out of it. The wise man lives as long as he ought, not as long as he can."

¹ Ff. 49, 16, 6.

² De Finibus, III, 18.

³ Tacitus Ann., XIII, 56.

Possibly Dr. Johnson had this in mind when he wrote: "To die is the fate of men, but to die in a lingering anguish is his folly," although the Colossus of Literature afterwards vigorously denied any intention of justifying suicide.

Many other illustrations of the spirit of the Grecian and Roman philosophy on the subject might be given were it necessary.

If we should say that this spirit showed the ruling opinion upon the subject, in the periods we have referred to, the statement would probably be challenged as a false deduction, just as it would be erroneous to assume that because Col. Ingersoll, a year or so ago, came out as a champion of suicide, and many other freethinkers have followed him in this, it must therefore follow that the civilization of this age echoes their opinions.

As a matter of fact, it is not difficult to find, among Greeks and Romans of those periods, an abhorrence of suicide, and scathing rebukes of it.

Lucretius,⁴ referring to the hatred of life which some evidenced as the result of the fear of death, observes:

"They kill themselves, thus seeming not aware
That the same fear's, the fountain of their care."

And the moral grandeur of him who, amid the cruelest misfortunes still clings to life, was never more finely pictured than by Horace:⁵

"Nor would the wreck his mind appall,
Should the whole world to swift destruction fall."

Plato declares that he who deprives himself of life becomes shorn of his nearest and best friend.⁶

"Suicide," said Cleomenes, when misfortune had so hedged him that he was advised to resort to it, "is a remedy which men should never make use of while there is an inch of hope remaining."⁷

Instances are not wanting where governments have advised suicide. Thus, during the reign of Tiberius, those convicted of

⁴ De Rerum Natura, Lib. III, 79.

⁵ F. N. Od., III, 3, 7. Si fractus illabatur orbis, Impavidum ferient ruinae.

⁶ Laws, Bk. IX.

⁷ Plutarch, On Virtuous Deeds.

capital crimes were counselled to take their own lives if they would prevent the forfeiture of their goods.*

In a former age, the city of Marseilles kept constantly prepared a hemlock mixture, so that anyone tired of life might obtain it at the public expense, the only condition being that the intending self-murderer should appear before the Council of the Six Hundred and give an account of the reasons why he desired to die.

Christianity has always condemned the suicide in unmeasured terms; hence all countries, in which that religion has held sway, have for the most part declared an attempt at self-murder to be a crime.

In none is it held in more abhorrence than in those under Anglo-Saxon laws, the only modification of the act as a crime, admitted by the English common law, being that the attempt must be made by one who has reached years of discretion and is in possession of his mental faculties.

As the one who consummated the act could not be punished, the law visited its infraction on what he left behind—his name and property.

Most of the States in the Union punish attempts at suicide, as well as those who are accessories to it—a sufficient answer as to the light in which the law regards the view that a man's life is his own property. The practical nullification of the law in this respect, by daily breaches of it, affords additional evidence, if such were needed, that human laws are sometimes inefficient to reach the ends proposed.

New York has such a law, and within the last few days a legal journal in that State has admitted that it does not prevent the crime, since, so far as the city of New York is concerned, suicide is apparently on the increase.

Indeed, for many years general statistics have shown the same tendency, not only in Anglo-Saxon countries, but elsewhere.

One peculiar feature of the suicidal mania is that it affects different classes of persons in a ratio different from what we might expect, if social standing can be considered as a factor in it.

Thus, forty years ago, it was shown that while only 4 in every 10,000 persons rated as paupers died by their own hands, nearly

* Tacitus Ann., VI, 29.

7 coachmen or other servants, 5 bankers or professional men, 7.8 dragoons, 7.43 tailors, shoemakers and bakers, while the trades making the best showing (1.33) were carpenters, butchers and masons.

Of the countries concerned, Sweden had the lowest average, only 1 in 92,000; Russia, 1 to 35,000; the United States, 1 to 15,000; Saxony, 1 to 8,446; while in the cities of St. Petersburg and London, England, the proportion was 1 to 21,000. For the whole of England^{*} there were 7 suicides to 100,000 of the population.

Taking the last fifty years, we find, according to a recent Paris publication, *L'Illustration*, that for every 100,000 inhabitants of France, there were, from 1841-45, 9 suicides; from 1846-50, 10; from 1861-70, 13; from 1871-75, 15; from 1876-80, 17; for 1889, 21; for 1893, 22; for 1894, 26.

Reasoning from these figures, the years 1896-7 will show an increase. Thus the number of suicides in France, for the period of fifty years just given, has nearly trebled.

Durkheim shows that from 1826 to 1890, the number of suicides in Belgium increased 72 per cent; in Prussia, 411 per cent; in Austria, 238 per cent; in France, 318 per cent; in Saxony, 212 per cent, while in Sweden and Denmark the increase has been the lowest, viz., 72 and 35 respectively.

That religion seems to wield an important influence in connection with self-murder is evident from the fact that in Roman Catholic communities suicide is less prevalent.

Thus in the German Protestant States, the rate is higher than in Roman Catholic Bavaria, and in Spain and Portugal it is lower than in most Protestant communities.

In Roman Catholic localities, according to another authority, the number of suicides is 58 in 1,000,000 of the population; in Greek Catholic states, 40; in the United States, 46; while in those classed as Protestant, the proportion is 100.

Still we have seen that in Protestant Denmark, we have the lowest average for the world, and Protestant Sweden comes next.

Marriage also exerts a restrictive influence without reference to nationality or religion. Morselli's figures show that out of 365 male suicides in Italy, 108 were bachelors and 157 widowers.

^{*} Winslow, *Ann. of Suicide*.

Again, in France, the number of widows who commit suicide is double that of women whose husbands are living.

Reasoning from general statistics we find that in 1,000,000 of unmarried people, there are 975 suicides, or about one-third more than among the married, while in those who have children, the ratio is nearly another one-third less, or to be definite, 336.

In the face of these startling figures, the question arises, what is the primary cause, if such indeed exist, of this disregard of one's life?

There is no doubt that with the weakening of the influence of religious conditions in any given case, and with the loss of the feeling of responsibility to a higher power, comes a comparative indifference to life.

This is only an illustration of what all writers on legal ethics insist is the true theory of the object of man's punitive legislation, prevention rather than punishment.

I have been unable to obtain statistics as to the proportion of suicides among free-thinkers, and the personal observation of an individual writer would be of no value for the object of this paper.

Reliable returns, however, as to this class would be of use as a basis of comparison, if they could be obtained.

Other causes for suicide, such as domestic trouble, disappointment in love, loss of property, alcoholism, each plays its part, and becomes much more efficient, when the absence of religious belief is observed in the person concerned.

From the foregoing, we are led to think, that moral coercion may be effective in reducing the number of suicides, although penal legislation is virtually useless.

The legislature may declare it unlawful to sell poisons except under the most minute restrictions, but this only leads the intended *felo-de-se* to turn to some other means, which he has always at hand, if unrestrained in his liberty. All such legislation, therefore, may well be classed as worthless. So far as it affects accessories, it may accomplish a modicum of good, but accomplices in suicide are very rare criminals, in fact, the rarest.

It has been suggested by some writers that the desire to commit suicide often arises as the result of a kind of moral contagion. Indeed, the question has been asked: Is suicide contagious?

It would seem dogmatic to sneer at this idea, since psychological influences, which we are not yet able to fathom, may be at work to produce self-murder. There is no doubt that some suicides take place for which no motive can be assigned, so far as we know, except a morbid desire to excite the sympathy which may have been given to some one who had thus destroyed himself.

Anyone who thus ends his life is mentally ill-balanced, and a little moral regimen might have prevented such a result. The fact still remains, however, in such a case, that the imitative faculty, or the principle of suggestion, has brought about disastrous consequences which no legal regulation could have prevented.

In conclusion, it may be said that alienists no longer doubt that a propensity to suicide may be inherited. While the person afflicted with this tendency is well, the disposition to self-destruction is dormant, but sickness or misfortune may arouse it, and it becomes a demon, requiring strength of will to control, in comparison with which the martial determination of a Hannibal or a Napoleon pales into insignificance.

Suggestion, then, becomes the tempter, and the victim's impulse to bring about the awful fruitage is aroused by every case of suicide of which he hears or reads.

FURTHER LABORATORY STUDIES ON URIC ACID IN NEURASTHENIA, AND ON AUTOINTOXICA- TION IN NERVOUS DISEASE.

BY F. SAVARY PEARCE, M. D., OF PHILADELPHIA,

*Clinical Professor of Nervous and Mental Diseases, Medico-Chirurgical
College of Philadelphia.*

Studies in metabolism have seemed to the writer since his office student days a great desideratum in connection with the possible clearing up of the ætiological complex that frequently makes the human body ill. Many of the cases of "chills" seen then in the lower Ohio valley were certainly not malarial. Might not autointoxication play a rôle here? was the suggested thought. A series of investigations was begun in 1894, when laboratory urinalyses were made in conjunction with clinical observations, as to the significance of peptonuria, and of indican when found in excess, in collaboration¹ with Dr. John H. Musser. In this investigation we were able to utilize a large number of general medical cases from the Presbyterian Hospital. The following tentative general conclusions were stated in this contribution:

1. Peptone depends on changes taking place in the system.
2. Indican depends on fermentations outside of the body (*in the gut*).
3. The relation of indicanuria with peptonuria depends on two things, mainly: (a) Septic or irritating condition is localized in the gastrointestinal tract, marked indicanuria is detected. (b) If at the same time the general system becomes involved in the destruction of albuminous compounds, then peptones are formed in excess in the blood and hence thrown down in the urine along with the excessive indican.

4. Thus, depending on *general* cell destruction and the elimination of the suboxidized proteid product, or on *local* intestinal

¹ Trans. of Phila. County Med. Soc., vol. XV, 1894, pp. 22 to 320.

fermentation being prominent, will peptone or indican be found in excess in the urine.

5. If the *local* and *systemic* conditions exist together as described, then we may expect to find both products in the urine. When in combination, the indication is of more serious disease.

6. Association of albumin with peptonuria and indicanuria. In the specimens of urine in which albumin was found, it was due to a definite cause, as in Bright's disease or pyuria; hence in the experiments, albuminuria bore no relation to peptonuria or indicanuria.

7. Likewise there is negative result in a few experiments in comparing the frequency of uric acid with peptonuria or excessive indican in the urine—the long accepted theory of direct relation between uric acid and urea is now overthrown. It would, therefore, be of value to test more extendedly for the relation of uric acid (thought to be produced from cell-nutri-destruction) to peptonuria and anocytosis.

"Finally, the trouble and time taken to do this work, thus far proves it not to be very practicable. But if one had the opportunity and time for such investigation of cases, important indications would undoubtedly be derived."

In the light of more recent advances in physiological chemistry, as well as in bacteriology, some changes are necessary in carrying out the lines of thought and fact as shown in the conclusions above stated. If in place of peptonuria we write albumosuria, the statements given in the above conclusions will to-day still be allowed to pass current.

Further studies of autointoxication have confirmed, in the main, the facts given above.² Continued analyses of the urine in the practices of Dr. S. Weir Mitchell, Dr. J. K. Mitchell, and of the writer with special reference to the significance of indicanuria, reinforces the statement above made as to intestinal putrefaction; and as a result, autointoxication seems to me pretty positively indicated by the presence in the urine of an abnormal indican reaction. Its association with gastrectasia and glyco-

² In a paper entitled "The Gastro-Intestinal Tract in Nervous Disease," presented to the College of Physicians of Phila., Jan. 3, 1900, the writer gave fourteen cases where autointoxication seemed to play an important ætiologic rôle.

suria was noted in three neurasthenic men. In all the three cases there was hyperacidity of the stomach contents; the figures in one instance amounting to above 5 per cent. We have also recently demonstrated marked indicanuria with glycosuria in one case in the practice of Dr. Wharton Sinkler, in which the results of treatment have not yet been determined, as well as in one of my own cases in which the man entirely recovered nervous health with the disappearance of sugar in the urine and of the indicanuria. We accounted for this widespread metabolic disturbance by the hypothesis of the hyperacid gastric content being carried to the liver, there to disturb, through excess, its glyco-genic functional control.

The finding in the post-epileptic state of albuminuria, as well as of an excess of uric acid in association with indicanuria in the period immediately following the attack, tends to confirm our view that in many cases of all sorts of this malady, the attack itself is induced or precipitated earlier, by intestinal fermentation, or by the presence of an excess of uric acid. In the urinalyses is to be found an explanation of the origin of the existing albuminuria as well as of the exciting cause of epileptic attacks in a certain percentage of cases. This finding is in part in harmony with the observations of Haig as to the relation of uric acid to the epileptic seizure, and should it prove to be constant, would clear up to some extent the pathology of epilepsy, albeit the therapy is still much hampered by the fact that treatment for elimination of uric acid while aiding, of course, does not get at the vital cause of the deranged metabolism.

Dr. Krainsky of Charcow,² in a valuable paper, claims that in this class of cases, the seizures will not occur so long as .61 to .81 grams of uric acid are excreted in 24 hours. If the daily quantity of uric acid excreted falls below .45, or more especially below 3.5 grams, a seizure is usually to be expected on the third day. Epilepsy is, therefore, to be considered not as a disease having a purely nervous origin, but as due to an anomaly of metabolism which has its basis in contamination of the organism by faulty products of metamorphosis. Krainsky demonstrated by a series of experiments that epilepsy is an intoxication and that the

² Abstract from Jour. Amer. Med. Ass., May 27, 1899.

poison is in the blood. By injecting blood drawn from a patient in the status epilepticus into a rabbit, he produced violent epileptic seizures two or three minutes later. Blood drawn from the same patient *after* the seizure, when injected into the rabbit, produced no effect. He concludes that the irritant to the cerebral cortex in these cases, is a substance closely related to uric acid, *i. e.*, carbamate of ammonia, carbonic acid in which NH_2 takes the place of OH which occurs in an intermediate stage of albumin metamorphosis; that epilepsy is due to the periodic formation of the carbamate of ammonia in the organism, which produces the seizures and is decomposed into urea and H_2O during them. Thus the main problem is to determine the cause and place of origin of this abnormal metamorphosis. Krainsky explains the benefit of the bromides of potassium and sodium not only by their sedative effects on the system, but by the ease with which they decompose the carbamate of ammonium, forming ammonium bromid and the carbamate of potassium or sodium, which are harmless salts. He lays great stress upon an antilithic diet in the treatment of epilepsy.

Again, a paper entitled "The Rôle of Uric Acid in Certain Types of Neurasthenia and Allied States; An Expression of Disturbed Metabolism,"⁴ contained an account of the continuation of the writer's studies in the chemistry of the urine. From this work, we drew the following conclusions:

1. Disturbed metabolism is the cause *sui generis* of a number of symptoms in many constitutional diseases.
2. This interference with the proper physiologic oxidation of food products, especially of proteids, and the retention of these suboxidized products in various parts of the body, all along the line of the arterial tree, is again the secondary cause of added symptoms in disease (as neurasthenia essentialis) where the initial symptoms could not be ascribed to disturbed metabolism.
3. Whether uric acid, oxalates, alloxur bodies, or other by-products, are or are not found in excess in the urine (uric acid diminished in our study) we must, judging rationally, assume that in many cases of nervous disease, such substances are re-

⁴Va. Med. Semi-Monthly, June 25, 1897; Med. & Surgical Reporter, March 31, 1898.

tained in the body and are the cause of many of the somatic phenomena in such chronic maladies.

4. Finding, as we have, such variations in the quantitative findings of uric acid in the same case under apparently similar symptomatology, and with much variation in diet, exercise, etc., we must assume that the cause is not dietary indiscretions, nor idiosyncrasy, in many cases.

5. As regards uric acid in neurasthenia and allied nervous states, it must exert a considerable etiologic influence on essential cases. It must be, no doubt, the cause of many secondary (symptomatic) cases of these same maladies. This would explain hysteria in organic brain disease in large part.

6. Back of it all we therefore have the weakened neurons (the element of tire or exhaustion beautifully proven by Hodge) hereditary or acquired, perhaps still intact in the so-called essential cases of nervous exhaustion. Later, becoming greatly exhausted, these millions of nerve cells cease to control metabolism; uric acid is formed and with other products, as peptone, albumoses, neucleins, and the like, all circulating in the blood, produces a complex jungle, causing every variety of symptom in the then toxic individual, which the refinement of physiologic chemistry is yet too crude to detect *in toto*.

7. The failure to recover the so-called normal urinary amount of uric acid is in part due to its being retained in the system in ever-varying amounts; and also from the fact that uric acid is excreted by the gastro-intestinal tract, and that uric acid is sometimes in part (as we believe now in our studied case) the cause of intestinal irritation in cases of neurasthenia. (See reference No. 8, Intestinal Lithiasis—odd.)⁸

8. Other leucomains, ptomains, and the acrid gastrointestinal secretions are together causes of such symptoms in some cases of neurasthenia, or at least the cause of exacerbations of symptoms already existing.

9. Certain persistent occipital headaches not relieved by proper glasses or eye-treatment may be due to uric acid deposited in the meninges.

10. In the treatment of neurasthenia, the best results will be gained by observing the above indications.

⁸ Bull. et Mem. de la soc. méd., juin 25, 1896.

"Rest, isolation, massage, electricity, forced feeding even to peptonizing the large amounts of milk given; the change of scene, suggestion, personality of the physician, absence of worry—all are paramount for a successful issue of the case.

"Correction of hyperacidity by lavage, bicarbonate of soda, phosphate of soda, relieving constipation, caring for the skin, the use of diuretics where the urine is scanty and high colored, and attention to the emunctories, with at times a needed intestinal antiseptics, are also details to be watched by the physician who hopes to cure neurasthenia. Then the use of the Brown-Sequard, the thyroid, and other organic extracts should be tried in a persisting case where everything has been done, as a means of possibly ridding the system of some hidden internal secretion that may be acting as an irritant. The use of soda salicylate I have seen do much good in neurasthenia, especially where vague shooting pains were tormenting."

Further studies in elucidation of the above series of urinalyses in cases of neurasthenia were made and published in a paper entitled "Some Experiments in Uric-Acid-Urea Excretion by the Kidneys in an Individual Upon a Milk Diet, and in a Case of Recurrent Melancholy."* In this laboratory and clinical investigation, we proved to our satisfaction that uric acid was decreased at the end of the 18th day to .016 per cent. (normal .05 per cent), the patient being meanwhile upon an exclusive milk diet. The urea at this time, also, was reduced to 1.4 per cent. (normal 2.8 per cent). This is again proof of a physiological fact that uric acid comes both from proteids taken from without (mainly), as well as from bodily proteid metamorphosis. In the case of brief recurrent melancholy, we always found a marked acid reaction to the urine; but no "brick-dust" deposit was noted. The lowest amounts of urea recovered were found on two occasions, when the patient was much depressed mentally and the deficiency in amount of the substance was never so marked as to be considered as an etiological factor in the symptomatology, the average being 2.7 per cent. A marked reaction for indican, indicating *intestinal putrefaction*, was obtained in each

* Presented to the Amer. Med. Ass., Section on Neurology and Med. Jurisprudence, June 7, 1898. Journal of Amer. Med. Ass., Nov. 12, 1898.

of the two attacks of melancholy in the cases recited. In the first attack of melancholia, the uric acid elimination equalled 10.5 grs. during the 24 hours cycle of depression (11 grs. being normal). On the other occasion, during the 24 hours immediately preceding the attack of depression, the amount recovered was 8 grs., a perceptible lessening and a possible indication that uric acid was a factor in the cause of the mental depression; perhaps the uric acid stagnated in the cerebral vessels with other catabolic autointoxicants.

Again, further confirmation of the relation of uric acid to many instances of widespread nutritional abnormalities of metamorphosis, as well seen in essential neurasthenia, has been recently obtained in laboratory studies of one of my cases given below.

D. Z. S., æt. 34, male, single, American, born with a slight but healthy physique, of predisposition to lack of nerve resistance. He was of dark complexion, of bilio-nervous temperament, the muscles were well set, the bones were small. When he first consulted me on November 15, 1897, I made the following general notes: Says he is "run down," has extreme lassitude, and somnolence in "spurts." He tires easily without cause, and is extremely depressed. Pain and distress across the lumbar region are especially harassing, so that his life is made miserable. The pulse remains constantly at 100 per minute. There is no cardiac, renal or other disease except this nervous exhaustion of so persistent a nature. The appetite is excellent, the bowels are regular, but upon occasion, without cause, diarrhœa occurs. There is no anal or rectal cause for irritation. His sexual powers are reduced to nil. He seldom has "wet dreams" unless he overworks, when such dreams are annoying—probably a sign of loss of inhibition. His station and gait are normal; at times says he feels dizzy and uncertain in walking. There is no arteriosclerosis detectable. The pulse is compressible and regular. The knee-jerks are quick and large. No sensory or motor disturbances exist. "Labor to think" (cerebrasthenia) is a constant complaint, and "thinking" brings on sexual irritation.

In the *family history* the father (a hard-worked Episcopal clergyman) had acquired nervousness. His mother died of Bright's disease. One sister is a hysteroneurasthenic. One brother keeps fairly strong only by living an out-door life in New

Mexico. My patient had also gotten himself quite up to the level of ordinary health several years ago by out-door Western life; only to relapse on coming east to student and clerical duties.

Treatment.—About all the list of nerve tonics had already been used with but transient results. I put the man on semi-rest treatment, and upon syrup of phospho-albumin, which did him much good during the three succeeding months. His urine was generally loaded with "brick-dust" deposit and was scanty, also containing oxalates and uric acid crystals in abundance; it became clearer under nutritive constitutional treatment, and the kidney excretion increased from a scanty flow to two pints daily with a gradual stopping of the lumbar pains, and a cessation of attacks of sneezing. [This last symptom I have also observed quite as well marked in another case recorded elsewhere⁷—a lithæmic man with neurasthenia and morbid flushing.]

This man improved for a time. In the spring of 1898, he began again to feel exhausted and miserable, palpitation of the heart and all the old symptoms of nervous fatigue returned, the relapse coming on without any assignable cause. He was not foolish or imaginative. The case was undoubtedly one of essential neurasthenia. During the winter of 1898-99, it seemed impossible to make the man gain in weight, though he ate well and apparently digested everything he took. Despite the fact that the gastric contents were normal, and there was no gastrectasia, at times he had apparently causeless attacks of serous diarrhœa in which uric acid was recovered from the stools. On these occasions, however, he was always relieved from the nuchal and lumbar pains, and at the same time enjoyed a feeling of latent vigor. This circumstance suggested to my mind that the elimination through the bowel of the uric acid and perhaps other fermentation products might possibly bear some relation to a toxic state of the system. Later a recurrence of the trouble came back with the apparent retention of uric acid in the system, no other cause being found.

I determined February 2nd, 1899, to make the uric acid by-product studies for variations in the uric acid in the urine, on the

⁷ Local Flushing and Morbid Blushing: Vaso-motor Paresis. Phila. Med. Journal, April 1, 1899.

assumption that they might possibly supply the key to the evidently widespread disturbance of metabolism. That many by-products do exist, and should be sought for by the physiological chemist, goes almost without saying and such studies as Chittenden^{*} has recently made confirm this view. But if *one* substance is constantly shifting in amount of production, or if its elimination under the *same* external conditions of diet varies, then it is fair to assume not a *post hoc* but a *propter hoc* significance to the index supplied by this comparative record of uric acid. Taylor's recent studies in uric-acid excretion upon different diets,[†] together with my own in the above-quoted paper, afford evidence in support of the theory advanced.

In the former experiments done by myself in the work reported in 1897 and in 1898, I used the Heintz method. If errors crept in they were of the same degree in all tests, so that the resulting proportionate index of uric acid elimination would hold good so far as regards the variations, even if the accurate number of grains excreted *in toto* per diem was not arrived at.

The tests made in the following recorded study of this last case of neurasthenia, the clinical details of which were given above, were more accurate, the newer Hopkins method being used with the addition of Simon's correction and the modification that the ammonium urate is decomposed with a deci-normal solution of HCl and the excess is retitrated with dimethyl-acid-azo-benzol as an indicator, 1 cc. corresponding to 0.0168 grms. urea. Through the courtesy of Dr. A. C. Abbott the work was done in the Hygienic Laboratory University of Pennsylvania. The patient meanwhile went about his ordinary out-door and clerical duties and was upon a simple diet during the time of the testing. The urine was saved and the uric-acid excretion was calculated for the 24 hours. The tests were made daily, thrice weekly, twice weekly, and weekly, respectively, for the months of February, March and April, 1899. The man during this time had no intercurrent malady and his usual miserable, nervous state underwent a change for the better. Following is the record of the quantitative analyses for uric acid:

^{*} Paper read before the Pathological Society of Phila., April 27, 1899.

[†] American Journal of the Medical Sciences, August, 1899.

TABLE SHOWING THE AMOUNTS OF URIC ACID RECOVERED AND CALCULATED FOR 24 HOURS.

Feb. 9, 1899.....	7 grs.	Mar. 3, 1899.....	5 grs.
" 10, "	10 "	" 6, "	9 "
" 11, "	6 "	" 9, "	8 "
" 12, "	5 "	" 12, "	12 "
" 13, "	9 "	" 15, "	9 "
" 14, "	6 "	" 19, "	10 "
" 15, "	5 "	" 23, "	6 "
" 16, "	8 "	" 27, "	5 "
" 20, "	11 "	Apr. 2, "	6 "
" 23, "	13 "	" 5, "	4 "
" 25, "	10 "	" 12, "	13 "
" 27, "	7 "	" 19, "	9 "
" 28, "	4 "	" 26, "	7 "
Mar. 1, "	13 "	" 29, "	5 "

Indican was only found plus on two occasions out of many tests. Peptone, tested for twice, was not found. No albumin or oxalates after many tests.

The exhibition of salicylic acid and lithia tablets seems to cause an abatement of the lumbar pains and of the presumably uric-acid diarrhoea, which on several occasions, followed an exacerbation of his vague neurasthenic symptoms. The primal cause of altered vital action of the trophic neurons is still existent; and this now terminal case, we fear, can only be bettered, not cured, yet it teaches an important clinical and scientific lesson.

Similar quantitative studies in uric-acid excretion have been made in the case of Miss H., a neurasthenic, subject to violent occipital headaches, under the care of Dr. S. Weir Mitchell, in February and March, 1896. The neurasthenic symptoms were typical. A summary of the report is as follows, viz.: 1. The uric-acid excretion is not always excessive. 2. It shows great variability—an evidence of disturbed metabolism from neurasthenia.

A woman, aged 46, in whom uric acidæmia proved to be the cause of persistent headache, was examined by the writer for Dr. Laine, now of Cuba, at the instigation of Dr. S. Weir Mitchell, who was the consultant in the case. We found lack of proper elimination of uric acid during two separate attacks of most intense occipital headache; the uric acid coming up to the normal of 11 grs. in 24 hours within a few days after an attack.

An interesting case of questionable spinal sclerosis of un-

doubted gastrointestinal origin from autointoxication in a man with marked "wind" dyspepsia, the writer examined for Dr. J. K. Mitchell on February 22, 1899. This man had had a transient left cerebral oedema (a rare condition) seven months previously with recurrence once since, and we believed it must be due to atony of muscle fibres of stomach walls, thus permitting gastrectasia of centric origin, in fact. The stomach content examination showed a total acidity of 4 per cent, but with excess of lactates. There was no glycosuria present and uric acid was thrown down not much in excess; but there was marked indicanuria. The man went back to his home after a short time of tonic and antiseptic treatment with semi-rest regime, under which routine he greatly improved. With an already lowered health standard, and his return to an unhealthy country, his general tone correspondingly lowered. In a short time the gastrointestinal indigestion returned. At the end of May, 1899, the indican reaction became marked in the urinalyses, and the stomach dilatation recurred in an aggravated form, as stated above. The blood count at this time showed H. 65 per cent, R. b. c. 3,500,000, many microcytes; plasmodia were absent; the leucocytes numbered 15,000 two and three-quarter hours after the mid-day meal. The entire aspect of this specially studied case seems (from the rare oedema of the meninges, from the symptoms of spinal irritation [knee-jerks exaggerated] and the gastrointestinal atony) to be due to central neuron lowered tone and sequent disturbance in metamorphosis, causing widespread auto-intoxication through this faulty metabolism.

To our mind the case proves as far as can be the fact that trophic lowering of vital action of the brain cell mass may induce final extreme toxic secondary symptoms giving the clinical picture of neurasthenia.

CONCLUSIONS.

In the foregoing studies made with especial reference to the search for evidence of cause or effect in certain cases of neurasthenia, I have sought to trace the significance of the uric acid by-product especially as an index to disturbed metabolism. The writer feels that in this wide variation of excretion, thus determined, of so important an end-product as uric acid resulting

from combustion in the human body, we have sufficient data to say positively that neurasthenic conditions are associated with the circulation of such an irritant in the blood. From the observations of Haig, it seems clearly proven also that when the uric acid elimination is decreased, the urea elimination is normally increased. The amount of elimination of urea is in proportion to the albuminous food products properly absorbed into the blood, thus giving rise to strength and a feeling of latent vigor in the system so nourished. On the other hand there assuredly follow a sense of feebleness and lack of resistance when the uric acid elimination goes above the normal and in consequence the urea elimination falls. As experimentation in the laboratory has proven that in health there is no such variability in the excretion of uric acid by the kidneys—an important fact shown in all of my studies—there is but one conclusion to be drawn from this persistent evidence; namely, that physiological absorption of proteids is inhibited in an irregular fashion in the neurasthenic subject; or else the condition is due to want of proper vaso-motor control of the capillary blood-vessels, thus permitting an irregular and improper elimination of uric acid, etc. From all this evidence presented, and with the weight of symptoms of vital phenomena so patent to every physician in nervous exhaustion states, it must needs be that in such central disease the central energizing influence (of the neuron vitality, *per se*) is greatly enfeebled and is unable to carry this weakened vital action through the nerves to the organs of digestion and absorption. This vicious circle of disturbed metabolism being established, we have secondary irritations continuously operating on the already devitalized nerve centres. The great system of organic life, the sympathetic thus also becomes overexcited and in a condition of irritable weakness as manifested in the resultant symptomatology of neurasthenia.

The gist of these studies leads back to the search for the initial cause of essential neurasthenia; but when such a condition is once established, it is always certain that excretion of end-products will vary irregularly and widely.

These observations are in concordance with the idea of nutritional basis as the essential element in the cure of neurasthenia. From a closer attention to dietetics, especially

the study of the individual idiosyncrasies of the case, we may hope to gain the best results in the treatment of this disease so prevalent in America. That there are other irritants taken in from without the body as in the absorption of toxins from the gastro-intestinal tract, is also a fact the writer has proved to his satisfaction recently in another place.¹⁰ It is hoped with this scientific evidence before us of the *causa morbi*, a more definite stand will be taken by the neurologist as to the ætiology of this disease and that more and more cases will be considered what might be properly termed organic in nature, secondary to an initial functional disturbance, albeit the microscope may be as yet unable to determine changes in the nerve cells themselves.

The influence of change of scene should be fully weighed in the management of this subtle disease, but must be associated with nutritional measures, if we wish the "summum bonum" of success for treatment. Again, hydrotherapy is of paramount importance, especially in bringing about a stimulation of the digestive processes through reflex action.

The valuable little work of Haig on "Diet and Food in Relation to Strength and Power of Endurance" can not be too highly extolled from the scientific view, which in part has been in this composite paper, deducted and fortified.

¹⁰ The Gastro-intestinal Tract in Nervous Disease. Boston Med. & Surgical Journal, March 8, 1900.

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DEGENERACY.

(PHENOMENA THAT ARE EXPLAINED OTHERWISE THAN BY GENERAL PRINCIPLES ARE NOT TRUSTWORTHILY EXPLAINED.)

BY ORPHEUS EVERTS, M. D.,

College Hill, Ohio.

Since the publication, some years since, of Max Nordau's widely-read book, "Degeneration," much attention has been given to the subject of possibly obtainable physical conditions in their relation to certain abnormal mental characteristics, not recognized as insanities, nor otherwise intelligently accounted for.

The term *degeneracy*, however, as now so freely employed colloquially, is without uniformity of meaning, or restricted definition. In the present discussion, necessarily limited and discursive, the term will be used as descriptive, in a general way, of physical conditions obtaining in the development of individuals of various characteristics, but groupable under the general heading, "The Defective Classes of Society," recognized, also, as "The Dependent Classes." This broad group embraces all persons who, by reason of mental defect, are incapable of self-support, as well as those who, by reason of mental deficiency, are incapable of perceiving the sinfulness of sin, or the beneficence of restraint therefrom.

That the intellectual status of all such persons is below the standard of common capability, characteristic of the societies to which they belong—and hence is suggestive of degeneracy, deterioration or growing worse—there can be no question, inasmuch as they represent the constitutionally insane and the constitutionally immoral, or criminal.

By the phrase "constitutionally insane," reference is had to that great number of insane persons whose mental obliquities are manifestations of energized "potentialities of insanity" resident in their organizations from birth, however long dormant, or however late in being mobilized.

By the phrase "constitutionally immoral," reference is had to that large class of persons who, because they are constitutionally incapable of complex moral perceptions, delight in immoralities and association with the wicked. To the defective understanding of such individuals, all pretention to virtue in others appears to be hypocrisy, and all restrictive law as the personification of injustice and oppression.

That the defective classes mentioned (there are others) have always furnished serious problems for the consideration of their more fortunate kindred, burdened and endangered by their existence, needs neither affirmation nor confirmation. That such problems have become more and more interesting with the accumulation of knowledge and advance of science—compelling modifications of ancestral notions, theories and practices, and effecting reforms in every direction, religious, social, and political—is equally patent to open-eyed observers.

There is, in fact, no problem of more immediate interest to society at the present time than that concerning the relation of the more intelligent, and hence the stronger classes toward the constitutionally defective, and hence the incompetent and immoral. Herein are involved questions of cause and effect, remedial experiments and future prospects.

It is needless to say that this problem would require more time and knowledge for its full discussion than are at my command at this moment. I propose, however, to glance at some of its more salient features—the alleged and real causes of degeneracy, the past and present treatment of the degenerate, with an intimation only of what may be anticipated.

Degeneracy is generally attributed to certain real, specific, readily comprehensible causes; such as alcoholic intoxication, luxurious and lascivious habits, overwork of the ambitious and avaricious; the "fast living," in short, of all complex civilizations characteristic of certain classes of people. It is but seldom, if ever, that these agents, aided and abetted by a mysterious co-conspirator called "Heredity," are questioned as to their true relation to degeneracy, even by persons who are habitually inquisitive. And if the phenomena of degeneracy are to be accounted for, after the manner of mankind in a state of ignorance, by reference to superficial appearances, and personification of

causes, instead of general principles, such alleged causes would seem to be indisputable. They are, however, as a matter of fact, as deceptive and pretentious as are the "alleged causes" of insanity, by which the statistics of our hospitals for the insane are periodically decorated—worse than worthless in a scientific investigation of the subject.

A Greek engineer saw water rise spontaneously in a pipe from which the air had been exhausted, and explained the phenomenon by alleging as a cause, Nature's abhorrence of a vacuum. The explanation was accepted, answered its purpose, but in time became worthless and absurd. Centuries later Sir Isaac Newton generalized a principle from his observation of familiar facts by which not only the phenomenon of water rising in the exhausted pipe, but all other phenomena of physical equilibration were scientifically accounted for and rendered anticipatable. So with all phenomena—psychic as well as physical—we must look deeper for primary causes than has been customarily done.

These alleged causes of degeneracy, like some, if not most, of the alleged causes of insanity—conditions nearly allied—especially the more conspicuous, are, indeed, more intelligently recognizable as sequences than as antecedents of the conditions implied. For example, not two of a hundred habitual drinkers become habitual drunkards. The one who becomes a drunkard does so because of already defective, unstable, organization, incapable of resistance.

That defects of organization, once established, may be transmitted from parents to offspring, with increasing defectiveness, if both parents are alike delinquent, there can be no question. The beginnings of degeneracy, and hence the causes, however, must be looked for in a different field of observation—a field as different from that habitually explored as was the field in which Newton wrought from that familiar to Archimedes; as different as Darwin's was from that of Moses; as different as Mivart's was from that of the Church of Rome. It must be traced, in fact, to a universal principle, or we must be content with half-truths and false inferences, respecting it.

Is there such a principle?

"This great God's fact, the Universe," as Carlyle was pleased to term it, is not a matter of happened-sos. It is not, and never

was, a matter governed by stratagem, nor spasmodic special providences. It is the unification of all possible variety. It is the harmonization of all possible discord.

What is a "general principle?" It is one with the equivalent term, a "law of nature" which signifies neither more nor less than a uniform result of uniform procedure in the economics of nature or the universe, by an accurate knowledge of which we are enabled to infer past histories and anticipate future occurrences.

The general principle in accordance with which physiologic movements tending to degeneracy are primarily instituted may be designated as the law of *physiologic equilibration*. It is manifested by an inevitable reversal of physiologic processes at a certain culminating stage of development and a subsequent continuation in an opposite direction until a balance is restored. It is one, in fact, with gravitation and evolution—principles representing the necessities of the universe.

In other words, degeneracy is "an inevitable sequence of antecedent conditions," the more notable of which, comprehensively grouped, we call "civilization," whose most conspicuous feature is a marked departure from primary, typical, human conditions, manifested by an increase of intellectual capability and corresponding differences in modes of thinking and habits of living characteristic of civilized man.

That such a departure from a common centre cannot be continuous in a straight line is as obvious as the fact that the motions of matter are so ordered in the economy of nature that, whether of molecules or masses, motion is rotary and orbital, vorticular or spiral, but never linear; always tending toward, but never finding, rest. By such motions are effected the balances essential to the stability and integrity of all forms of matter—of the universe itself.

That such a deviation from a common, or typical, human development cannot be continuous in the same line without culmination and return toward more common conditions, may be known from the fact that all ancient civilizations, of whatever peoples, did so culminate, and return, through an arc of degeneracy, to more primitive conditions.

Witness, also, the fact that in all great cities, the peculiar pro-

ducts of civilization, humanity is represented at one extreme by persons and classes of the higher grades of intellectual attainment, refinement of manners, purity of morals, everything, in short, that makes civilization desirable and commendable; and at the other extreme by persons and classes of the most converse character, intellectually incapable, vulgar, obscene, squalid and criminal! And yet these persons and classes, be it understood, are of the same race, and are descended from a common ancestry, whose relative conditions are not accidental, nor exceptional, but so uniform as to be recognized as legitimate.

So unusual is it, likewise, for the descendants of an illustrious sire to occupy the plane of his attainments for even two or three generations, that such an incident is regarded as remarkable. He who is not equal, or superior, to his father may be regarded as retrogressing, touched already by the insidious finger of degeneracy.

Is degeneracy, then, so inevitable? Is there no remedy?

As a sequence of civilization, it must be recognized as inevitable; so inevitable, indeed, that a sagacious observer could predict with assurance that were all the criminals and lunatics now living congregated and smitten in one night with deadly pestilence, as were the armed hosts of Sennacherib, the capacious and numerous buildings now provided for their reformation and cure would hardly need repair before being required for the accommodation of a new accumulation of degenerates.

If by "remedy" are signified means by which the degenerate can be regenerated or restored to better conditions attained by ancestors—from which they are in a state of retrogression—there is no remedy. Neither religion, experience nor science offers any hope of such.

Historically considered, until quite recently no systematic effort was ever made having such an end in view. Human practices correspond, generally, to human beliefs. The Christian world, for example, having believed always (until now) that all men are born alike depraved under the inexorable influence of heredity, redeemable only by religious observances and priestly interference; that all immoralities are instigated by a supernatural monster, and all insanities are caused by evil spirits, pursuing and possessing the unfortunate lunatic, the defective classes of

society were regarded and treated as outcasts, abandoned by God and hopelessly enslaved by the Prince of Evil.

In conformity with such belief—religious observances and priestly thaumaturgy having failed to correct the natural depravity of the constitutionally immoral or to cure the constitutionally insane, leaving society unprotected from their depredations—society protected itself by the time-honored method of punishing the offenders even unto death!

Do we shudder at the record? Why should we? Society was right! It acted responsively to its immediate necessities, according to its knowledge and beliefs. It is true that less than two centuries since, in accordance with British statutes, more than two hundred offenses—ranging all the way from high-treason to the theft of a sheep or a shilling—were punishable by death. But society believed at the same time—and believed it to be a crime meriting death not to believe—that the Creator of heaven and earth, and all things therein, had condemned the whole human race to die because of an offense committed by one man, an offense of so trivial a nature, literally considered, as to be unworthy of more than a paternal reprimand. Thus the apparent barbarity and cruelty, to say nothing of the injustice, was rational as well as necessary. For if the first law of nature commands us to preserve our own lives, the second commands us to kill whoever else endangers them!

Social relations, however, in Christian countries, have greatly changed within the present century. The disposition and effort of modern society, in its treatment of the defective classes, have been to reform the criminal and cure the insane.

With these ends in view it has practically abolished the death-penalty from criminal jurisprudence. Imprisonment has been so modified as to be, theoretically at least, reformatory and educational, rather than punitive or retaliatory. The insane are housed in palatial residences, with all modern improvements, wholesomely environed, and constantly attended by qualified servants and physicians paid by the State. Immorality is recognized as characteristic of persons of a low order of intelligence, still possessing somewhat befogged perceptions of its constitutional relationship. Insanity in all forms is recognized as a phenomenal manifestation of disease—disease, not of a supernatural

entity called "the mind," but of natural, material organs capable of manifesting mind by their functional activities, and of characterizing such manifestations by their peculiarities of structure and conditions. In consonance with these modern recognitions, both the criminal and the insane are now being treated.

With what results?

To deny the beneficence of present conditions, theories and practices affecting the defective classes of society, as compared with former notions and methods, would be to deny the whole philosophy of evolution, and development of mankind by growth; or to admit as a matter of fact that the present age is one of universal degeneracy so far as all Christian peoples are concerned. Such a conception would be indicative of a degree of pessimism that I for one have not yet reached, notwithstanding the disappointments of many, many years.

That the benefits resulting from such modifications of beliefs and methods have not been in accordance with expectations and promises does not detract from their value. But whatever benefits may have been conferred upon the defective classes, it must be admitted that the criminals have not been reformed, nor the insane cured, to any considerable extent. The most conspicuous result, so far as these classes are concerned, aside from being made more comfortable, has been a prolongation of their lives and an increase of their number as related to the general population. The greater beneficence has been, indeed, toward the advancing, rather than the retrogressing, classes of society. The strong have grown stronger by bearing the burden assumed. That the weakness of the weak has not been transmuted into strength was not their fault. As in business relations, the rich may contribute to the needs of the poor, and relieve them from much suffering, but cannot so improve their intellectual capabilities as to enable them all to get rich at the same time, so in the relation of the more perfect to the defective classes of society, the stronger may contribute—as they have done—to the general well-being of the weaker, but cannot by any known method stimulate new growths of impaired or defective structures essential to their regeneration or cure.

Shall we, then, confess to disappointment—we, who have devoted our lives to attempts at curing the insane. Disappoint-

ment, indeed, in this, as in all other matters, is an inevitable sequence of having expected too much. Our errors, too, of expectation, like all other errors, were the result of ignorance—ignorance of facts, and their significance, and consequent imperfect comprehension of the problem before us. Thus, for example, we had failed to appreciate the primal fact that all phenomena—including human existence, and mental manifestations—are expressions of, and determined by, modes of motion effected by the operation of infinite energy upon universal matter. Nor did we know the secondary fact, that the motions of matter thus effected, whether of atoms or of worlds, are so balanced as to limit their range, and maintain an equilibrium essential to their integrity, and the accomplishment of ends to be determined thereby. Furthermore, with these all other facts must harmonize to be of value as witnesses to truth. We were in ignorance, also, of the fact that heredity is not as it was generally conceived to be, a mysterious personage, performing specific functions in the economy of organization, but is only a manifestation of expectable conditions that are likely to obtain in the course of reproduction of living beings, in accordance with the law of uniformity so characteristic of natural processions, subject to such variations only as are permissible within the limits of organic necessities.

It is probable, too, that ancient notions respecting the constitution of man—regarding him as a dual being, a material and a spiritual man, not alike amenable to the same laws, instead of a wholly natural man, a minute and ephemeral specialization of an endless aggregation of matter and force—becoming, existing, and disappearing as do all other living beings, so far as we can trace the evolution—had much to do by way of sophisticating our use of such facts as were more or less fully recognized.

But admitting failure to regenerate the degenerate, to reform the criminal and cure the insane classes of society, as was promised and expected by the prophets and apostles of the new sociologic and psychiatric regime, labor in that direction has not been without its reward. Beside a great and increasing amelioration of human suffering effected thereby, an expansive and ennobling sentiment of humanity has been cultivated, affecting other interests, and we have added to our stores of knowledge invaluable

accumulations. Our failure does not imply failure of design or execution on the part of the Supreme Intelligence to which we ascribe existence. Do we shrink from the conclusion that degeneracy is inevitable under certain conditions, from which recovery is impracticable? Is not death even more so? Who questions the Providence—the necessity—of death! The Infinite is not measurable by human perception or imagination. But such of us as have abiding confidence in "the eternal verities of the universe," however mistaken we may have been in many of our personal estimates, find no occasion for alarm or anxiety. We have outgrown anticipation of a millennium; we have no fear of a grand catastrophe. We know that civilization, with its extreme inequalities, is better than the common level of antecedent savagery. We may listen patiently to the impatient clamor of zealous, but narrow-minded reformers, demanding "some kind of a law" for the correction of human imperfections; a prohibitory liquor law, or a law prohibiting the marriage of defective men and women, expecting thereby to arrest degeneration and abolish sin, as well as disease, from the world; we may, finally, adopt asexualization as a surer and more expeditious means for the prevention of an intolerable increase of the degenerate classes—no light burden now upon the backs of the stronger. But whatever may be done by society, or not done, in this or any other matter, we may rest assured that the power and the wisdom of the Infinite, "from which all things proceed and by which all things are effected," will be vindicated by results.

The pathway of human progress has been marked everywhere by monuments of human error, but for which human advancement would not have been recognized. Fortunately for our welfare and contentment, we can only see the monuments thus left behind by looking backward! Before us still are duty, hope, and expectation!

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THREE CASES OF GENERAL PARALYSIS IN YOUNG WOMEN.

By W. L. WORCESTER, M. D.

Assistant Physician and Pathologist, Danvers Insane Hospital.

Although reports of cases of general paralysis in young people are no longer of extreme rarity, but few have been reported in this country, and it still seems desirable that such observations should be put on record. Within a comparatively short time, three young women, suffering from this disease, have died in the Danvers Insane Hospital. In two, symptoms of the disease showed themselves before the age of twenty; in the third case, it appears to have begun at the age of twenty-two.

Case 1. Rosa N., single, aged 19, was admitted June 17, 1896, by transfer from the McLean Hospital. The previous history of the case has been reported by Dr. A. Hoch, Pathologist to that institution,¹ from whose paper the data as to the family and early personal history of the patient are abstracted.

The patient was the sixth of a family of seven children. The older children were all living and healthy, but her younger sister died, at the age of seventeen, of general paralysis, the first symptoms having been noticed at ten years of age. Her father, aged sixty-one, had done no work for twelve years. He was subject to attacks of giddiness, and appeared infirm and somewhat tremulous, but Dr. Hoch considered it certain that he did not suffer from general paralysis. He positively denied having had syphilis, and gave a history of frequent sores on various parts of the body. The previous year he had two "boils" on his forehead, which lasted for a long time, and resulted in necrosis of bone. It seems most probable that they were syphilitic.

¹General Paralysis in Two Sisters, Commencing at the Age of Ten and Fifteen Years Respectively.—Autopsy in One Case. Transactions of American Medico-Psychological Association, Vol. 3 (1896), p. 303.

The mother was in poor health, but presented no special objective signs of disease. She was thought to be nervous and hysterical. None of the children gave evidence of hereditary syphilis.

The patient had been of average intelligence and enjoyed good health up to her fifteenth year, at which time she began to do badly in school, and soon after her mental enfeeblement was recognized by the family. Her memory, intelligence, and interest in her surroundings and occupations had become progressively impaired. She never had any motor excitement, or manifested delusions or hallucinations. Gait and speech had become gradually impaired. She had never had any convulsions.

She was an inmate of the McLean Hospital from December 2, 1895, to the time of her transfer to the Danvers Hospital. During that time her condition was essentially the same, with some progressive aggravation of both physical and mental symptoms. She walked unsteadily, with feet wide apart and arms held out from the sides, as if to balance the body. Speech was indistinct monotonous and high-pitched; words were slurred; in speaking there was coarse tremor of the lips and tongue. The handwriting was characteristic of general paralysis. Knee-jerks were exaggerated, and patellar clonus and slight ankle-clonus were observed. The reflexes in the arms were exaggerated in the latter part of her stay. The pupils were unequal, the right being the larger.

Mentally, she was silly in her conversation; omitted lines in familiar poems which she recited, often miscalled words in reading aloud, and failed entirely in reading moderately long, unfamiliar words. She could only perform the very simplest arithmetical calculations, not being able to multiply by numbers higher than four, and doing even worse in addition and subtraction. She was rather apathetic, seeming but little affected by the noise of the patients about her, although quiet and orderly herself.

The foregoing account is applicable to her condition on admission to the Danvers Hospital. It is noted at the first examination that she had difficulty in pronouncing words with many labials and linguals, e. g., "poppletelarity," for "popularity."

Mentally, she was childish in manner, and showed very pronounced dementia. Memory was very much impaired. She said she worked in a shoe-shop the previous winter, during which

time, in fact, she was in the McLean Hospital; named North Carolina and South Carolina among the New England States. She showed some appreciation of her mental failure; after failing in simple calculations, as subtraction of eight from twenty-five, she said her father "couldn't stick her" in arithmetic when she was going to school, but she had forgotten. Said she was in the eighth grade when she had to give up on account of headache.

Her handwriting was clumsy and unsteady, and a letter, written soon after her admission, shows the characteristic mistakes in spelling and omission of general paralysis.

During the earlier part of her stay she manifested a slight exhilaration, showing itself in a disposition to be constantly busy. She made herself rather useful in the simpler work of the ward, and was uniformly obliging and gentle. She recognized the insanity of other patients to some extent. She gradually failed, physically and mentally, but busied herself with patchwork up to a short time before her death. She was never uncleanly.

Her articulation became so imperfect, during the latter part of her life, that she could be understood only imperfectly. Her voice was high-pitched and nasal, but there was none of the drawl common in the later stages of general paralysis.

In November, 1898, she showed symptoms of pulmonary tuberculosis, which made rapid progress, and proved fatal on the 6th of March, 1899. She suffered much, realized that her end was near, and expressed a desire for death as a relief from her pain. She was able to walk without assistance up to the night before her death.

At the autopsy, performed $6\frac{1}{2}$ hours after death, extensive lesions due to pulmonary tuberculosis were found in both lungs.

The dura was healthy in appearance. The pia-arachnoid was somewhat cedematous and thickened. It separated easily from the brain, without tearing the latter.

The cerebral convolutions appeared somewhat atrophied, especially in the parietal region. The layers of the gray matter were easily distinguishable, and it and the white substance were normal in color and consistency.

The lateral ventricles were somewhat dilated; their ependyma was smooth. The ependyma of the fourth ventricle was slightly granular.

The brain weighed, after dissection, 885 grammes.

In sections from different parts of the brain, stained by the Nissl method, the meninges showed no infiltration with round cells.

Many of the arteries were tortuous, and their dilated lymph-spaces contained pigment granules and round cells in moderate numbers.

The normal columnar arrangement of the nerve-cells in the cortex was preserved.

In the Betz cells, the Nissl granules appeared normal in the processes and on the surface. In the interior of a large proportion of the cells, the stainable substance was in a finely granular condition. In a certain proportion of the large pyramidal cells of the third layer, the normal stichochrome arrangement of the stained substance was preserved, but in a great part of these, and nearly all the cells of smaller size, it presented a finely granular or spongy appearance. The nuclei of the nerve-cells were not noticeably altered.

In specimens stained with carmine, there appeared to be a moderate increase in the number and size of the neuroglia cells in the superficial layer of the cortex. None could be seen in the deeper layers, but in the white substance were numerous "spider-cells," with stout processes attached to the blood-vessels.

In sections from the medulla oblongata and upper cervical portion of the spinal cord, stained by the Nissl method, the nerve-cells appeared normal.

It will be observed that the pathological changes, both gross and microscopical, although of the character of those usually seen in cases of general paralysis, were very moderate in degree. Personally, I do not think I should have ventured to make a diagnosis of the form of disease with any confidence from examination of the specimens, without knowledge of the history of the case. This may doubtless be connected with the fact that the symptoms were not such as to denote a very far advanced stage of the disease.

In connection with the moderate appearance of atrophy of the brain, its very small size is noteworthy, and would seem to point to an arrest of development.

Case 2. Mary F., a mulatto girl, aged 22, was admitted to the

hospital August 1, 1899. According to her mother's statement, no insanity was known in the family, but the father had been a hard drinker, and died of alcoholism. A brother died of spinal meningitis; another from a burn. The patient was of ordinary mental capacity until nineteen years of age, when she was injured by the explosion of a bottle, in the shop where she worked, her head and neck being cut by the glass. To this her mother attributed her mental impairment, which was noticed soon after. She became dull and indifferent, and about a year before her admission her speech became impaired. Of late she had hardly been able to say anything intelligible except "yes" and "no." She had never suffered from convulsions.

The patient's stepfather subsequently stated that his wife had several abortions during her married life with her first husband, and that she lost several children in infancy. Only one besides the patient, the eldest, lived to be five years old. She had one child by him, still-born at term.

A visit was made to the patient's home, for the purpose of obtaining further information from the mother, but she had died in the meantime.

On admission, the patient was a dark mulatto, with typical negro features, tall, slender, but fairly nourished. The face was slightly unsymmetrical, the right eye being on a higher level than the left. No other marked anomalies of conformation noticed. Pupils equal, and reacted promptly to light. Knee-jerks exaggerated. Marked tremor of hands, and of facial muscles. Speech entirely unintelligible, from inco-ordination of muscles of articulation. Handwriting legible, but very irregular. Gait not very markedly affected, although she walked with rather short steps.

There was no evidence of impairment of sensation. No satisfactory examination could be made on account of the patient's inability to express herself.

Mentally, she appeared pleasant and in good spirits. She understood simple directions, but her comprehension of what was said was evidently very limited. She appreciated her inability to speak intelligibly, and when asked her name, would point to the mark on her clothing. She did not try to communicate in writing.

Her condition did not change materially during the first month of her stay, but about the middle of September a rapid deterioration set in. She seemed much depressed; wept loudly; denuded herself persistently, and no longer seemed to understand what was said to her. On the 30th of September she had a convulsion, followed by others at irregular intervals. She became filthy in her habits, lost strength rapidly, and died on the 30th of October, 1899, from exhaustion following severe convulsions.

At the autopsy, $3\frac{1}{2}$ hours after death, the skull was found to be very thick; the dura healthy; the pia-arachnoid much thickened and cedematous. It separated readily from the brain, without tearing the latter. The cerebral vessels appeared unusually small; not degenerated to the naked eye.

The brain seemed much atrophied. The convolutions were narrow, the sulci gaping, and the gray matter very thin. The ventricles were considerably dilated, and filled with turbid fluid. Ependyma of fourth ventricle slightly granular. The brain weighed, after dissection, 855 grammes.

In specimens from various parts of the brain stained by the Nissl method, the changes were more marked in the general aspect than in the individual cells. The nerve-cells appeared crowded and irregularly arranged, the normal columnar arrangement being lost. The Betz cells presented, for the most part, a fairly normal appearance, although in many of them a finely granular condition of the stained substance at the base could be observed. In a few cases there was central chromatolysis, with displacement of nuclei. In the central and paracentral regions, the marking of most of the large cells of the third layer was normal or nearly so; in the frontal and temporal regions comparatively few of these cells presented a normal appearance. The nuclei of the nerve-cells in all the layers seemed normal.

In specimens stained with carmine, there was seen to be a much greater hypertrophy of the neuroglia than is common in general paralysis. Especially in the frontal region, immense numbers of large spider-cells were found in all the layers. In the central convolutions they were mainly found in the superficial layer and the white substance.

The pia-arachnoid was thickened and infiltrated with round cells.

The arteries of the cortex were in many cases tortuous; their sheaths dilated and filled with round cells and pigment granules. The capillaries of the cortex appeared increased in number and size.

In sections from the medulla oblongata, stained by the Nissl method, the large cells of the motor nuclei showed normal marking.

The foregoing case is of interest on account of the race, as well as the age of the patient. Although cases of general paralysis in negroes are no longer very uncommon, I am not aware that any case of juvenile paralysis has hitherto been reported in a person of that race.

The family history, as given by the stepfather, is sufficient to raise a suspicion of inherited syphilis. Acquired syphilis cannot be excluded; the external genitals were not virginal, and there were evidences of old pelvic inflammation.

The anatomical lesions, both gross and microscopical, were characteristic and pronounced. As in the preceding case, the very low weight of the brain is noteworthy.

Case 3. Annie L., native of Italy, aged 22, married, was admitted November 4, 1896. According to the statement furnished by a friend, there was no history of insanity, nervous disease or intemperance in the family. The patient's father was living; her mother died of consumption when young.

The patient had taken morphine for about a year for the relief of pelvic pain, supposed to be due to uterine disease, which was alleged to be the cause of her insanity. Ten days before her admission she became excited and noisy; talked incoherently on religious subjects, and was erotic in her conduct.

On admission, she appeared in good physical health, and no paralytic symptoms were noticed. No evidence of uterine disease was found. She was very restless, and muttered incoherently most of the time, although it was possible to attract her attention and obtain relevant replies for a few moments. She was vulgar and profane in her language, but not resistive or violent.

In a few days she became more quiet, but did not appear clearer mentally. The following is noted under date of December 8, 1896:

"Is now eating quite well, and sleeping sufficiently. Cries hours every day without ascertainable reason. Is still entirely irrational. Is rather fond of running behind persons to throw them off their feet."

No further notes were made, but she was discharged as recovered, March 3, 1897. The diagnosis was made of acute mania, followed by a query, indicating that it was not considered certain.

She was readmitted April 20, 1899. Her husband stated that during the first part of her stay at home she appeared as well as ever, except that she was apt to become excited and talkative over trifles. About February 1, 1899, she became tremulous, weak and untidy; was quiet during the daytime, but sang and talked incoherently at night. Did her housework properly until two months before admission; then became forgetful; let fires go out; would not have meals ready, etc. About the same time her speech became indistinct. For a month had been too weak to stand and indifferent to her wants.

On admission she was well nourished, but almost entirely helpless; unable to stand or to feed herself. Articulation was very indistinct. She paid no attention to pin-pricks on the feet. She had no appreciation of where she was; said she was born in Montreal, in Italy. She seemed entirely comfortable and happy, but no extravagant delusions were elicited. She was emotionally unstable, easily moved to laughter or tears. During her entire stay she was entirely indifferent to cleanliness.

She grew more feeble and demented, but was able to sit up a part of the time until December 3, 1899, from which time she was confined to bed. Shortly afterward she showed evidence of pulmonary tuberculosis, which made rapid progress, causing her death January 29, 1900. For some months before her death she scarcely spoke at all.

At the autopsy, in addition to the lesions of pulmonary tuberculosis, examination of the head showed the following conditions:

Cranium small, of moderate thickness.

Dura healthy in appearance, not filled by brain.

Pia-arachnoid thickened and cedematous; not adherent to cerebrum.

Cerebral vessels not atheromatous.

Cerebrum greatly atrophied, especially in frontal lobes. Ven-

tricles widely dilated, containing clear fluid. Ependyma not granular. Cerebral cortex thin, of darker color than usual.

Weight of brain, 815 grammes.

On microscopical examination of the cerebral cortex, the columnar arrangement of the cells was preserved, although less distinct than in normal brain. In specimens stained by Nissl's method, the largest (Betz) cells of the central convolutions presented a fairly normal appearance, although the stained substance at the base was in a finely granular condition, but scarcely a trace of stichochrome arrangement could be seen elsewhere. Spider-cells were rather numerous, although not very large, in the superficial layer of the cortex and the white substance, but almost entirely wanting in the deeper layers of the cortex. The cerebral arteries were in many cases tortuous, with widely dilated sheaths, containing round cells and pigment granules, and in teased specimens evident pathological changes could be seen in the capillaries, which in many cases appeared shrivelled, with abnormally widely separated nuclei, and in some cases appeared as long filaments, destitute, for considerable distances, of nuclei, and, apparently, of lumen.

On the whole, the changes in the cortex, both in regard to the nerve-cells and the neuroglia, were less conspicuous than might have been expected in view of the evident degree of atrophy of the brain as a whole.

The pia-arachnoid was thickened and infiltrated with round cells.

In this case there was no suspicion of general paralysis during the patient's first residence in the hospital. It is, however, hardly probable that she was, at that time, suffering from a different psychosis. Her husband's account of her condition between her discharge and readmission can hardly be accepted as fairly representing the facts. It seems scarcely credible that the patient should have been able to attend to her household duties at all, up to the date as stated by him; that she should not have shown obvious signs of her disease for a very much longer period must, I think, in view of her condition when readmitted, be considered impossible.

Although the age of this patient at the inception of the disease was greater than in either of the other cases, the weight of the

brain, as will be noticed, was less than in either of the others. It should, perhaps, be mentioned that the brain, in each case, was weighed, as is customary here, after having been opened, and the subarachnoid and ventricular fluid allowed to escape. Weighed in this way, the brains of general paralytics very seldom fall below 1000 grammes. Making all due allowance for atrophy, it would seem probable that all three brains must have been, originally, unusually small.

In none of the cases was there evidence at any time of the grandiose delusions which were formerly considered an essential feature of the disease. Only one of the patients suffered from convulsions.

There seem to be pretty strong reasons for suspecting syphilis in two of the cases, although the evidence cannot be considered conclusive in either, and in the third the history is too imperfect to allow of drawing conclusions in either sense.

Two of the patients died of pulmonary tuberculosis, a result which, in my observation, is not rare in female general paralytics, in whom the disease usually runs a slower course than in men.

DEGENERATES IN THE ARMY.

By CHAS. E. WOODRUFF, M. D., U. S. ARMY.

Fort Riley, Kansas.

When instability of the nervous system exists to such a degree as to interfere with development and to produce degenerate modifications, these anomalies or stigmata generally unfit the man for military service. Men with such anomalies of sight, hearing, speech, physique, etc., cannot pass the examination and in this way the mass of degenerates are refused. Secondary conditions are equally fatal, for rickets and other diseases so common in the degenerate cause debarring deformities like flat-foot, knock-knee, funnel-chest, etc. If a man conforms to the standards for recruits, his variations from the normal must be so slight that nothing but normal development can be logically supposed. But although it must necessarily be very difficult to find degenerates among men who are so near to the average, I was rather astonished at first in examining soldiers at my failure to get well-marked stigmata for study. We need not discuss the problem so often propounded, whether there can exist a neurotic condition of an intensity sufficient to cause a degenerate brain, while the rest of the body remains normal. A man, whose psychical stigmata are so pronounced as to label him a degenerate is sure to have physical anomalies, if we only look for them—some arrests or excesses of development and growth, or asymmetries. In examining men for re-enlistment after discharge with an "excellent" character, I have frequently been unable to detect a single anomaly of sufficient grade to call it a stigma.

It must not be forgotten that the man who represents a strict average in every respect is an absolutely characterless individual in that he has no marked characteristics. His intelligence is quite limited, for the mean between the imbecile and the genius is a man of very ordinary ability. Soldiers with average bodies

have average brains and, though strictly normal, have not a high grade of intelligence. Indeed, both extremes of very high and very low intelligence—imbecility and marked talent—are probably too far removed from the average to be normal and are almost always due to unstable development. As a result we find very few psychical stigmata among soldiers and the néuroses of the clinic are extremely rare. The moral sense, also, being nothing more than the resultant of all the higher intellectual faculties instead of a distinct faculty by itself, is of average development among soldiers. Extremes are very rare, whether ideal morality, on the one side, or crime on the other. It is quite likely that any city including 65,000 men of ages from 20 to 30, of the same class of soldiers, contains at least one million inhabitants; and as most crimes are committed by the young it is not likely that any city of that size can boast of anywhere near the small percentage of crimes shown by the army. A thief is such a catastrophe in barracks that extraordinary efforts are taken to get rid of him, and his career is short. Again, the carousals of the soldier are generally no worse than those of young men elsewhere when freed from parental authority, nor much different from those occasionally heard of in university towns. In war times, the physical standard is lowered of necessity and we get more degenerates than in peace.

An examination of the young criminals of Pontiac, Ill., a few years ago, showed that very few could pass the soldiers' physical examination.¹ Among these criminals the degenerate had disqualifying stigmata, while the more nearly normal had evidently been brought up in such an adverse environment as to be in bad physical condition. In like manner boys raised in the slums of the cities do not come up to the physical requirements for apprentices in the navy.

As the degenerate are sick in far greater proportion than the normal, it is quite likely that civil practitioners are brought into contact with a far greater number of these cases than the army surgeon.

When we come to that great borderland of partial degeneration where Lombroso finds his criminaloids, where we place our

¹ Full details were published by Dr. E. S. Talbot, in the Jour. of the Amer. Med. Assn., in 1897.

tramps and where we find "the great army of the unemployed" who are unemployable, we still find stigmata sufficiently marked to cause the rejection of most of them. Yet there are some who slip in through careless examinations and cause trouble. Some are cases of slow development—partial infantilism—who have run away from home to seek adventures, but the great majority are mild types of the neurasthenic tramp, restless, unstable and flitting from one employment to another. Unable to stand the monotony or the restraints of civil life, they cannot possibly endure the rigidity of military discipline. Hence the deserters are almost wholly of this neurotic type—the borderland tramp. Most of the scandals arising from the enlisted man have been caused by these degenerates, essentially abnormal and neurotic. Neuroses are extremely common among them and some are pitiful cases. They are deserters in spite of all we can do to keep them, and most of them never have a clear idea why they desert. These are the only ones whom I have been able to study, and the neurotic family histories are extremely interesting. A few examples are given below. The higher degenerates of talent or genius, when placed among appropriate circumstances, occasionally cause remarkable commotions from their instability and mental abnormalities, but we will not discuss this matter here.

Case 1. Deserter. Has the following stigmata: hernia, varicose veins, stretch of arms 4 inches greater than his height, ears very asymmetrical and very degenerate in shape, development of upper and lower jaws arrested, partial saddle-shaped dental arches, narrow high vault, tubercles on the teeth, alveolar hypertrophy, thyroid hypertrophy, asymmetrical chest, deformed toe-nails, partially webbed toes, second toe projects beyond the others, great toe separated and partially prehensile. He said that he deserted because he failed to get a transfer to the infantry and could not ride a horse on account of his hernia—an absurd story.

Case 2. A. H., deserter, born of aged parents in their second marriage, has a roving, unsettled disposition and has engaged in many occupations. He is impudent and quarrelsome, and has the following stigmata: goitre, flat-foot, knock-knees, and asymmetrical face. Though he had but few physical stigmata, he gave the impression of being very abnormal.

Case 3. A. B., a young boy, quarrelsome and drunken, and in eleven months was court-martialed five times and finally discharged dishonorably. His father and two uncles are rheumatic, a brother and grandmother consumptive; his mother is neurotic and a brother is an imbecile. He has the following physical stigmata: nose deflected, ears deformed, left ear lower and more prominent than the right, enlarged mammæ, deformed chest with lateral curvatures, malars and chin arrested, enlarged thyroid, enlarged tonsils, adenoids, "catarrh," hypertrophied alveolars, semi-saddle jaws, small teeth, asymmetrical palate, dome-shaped head, left leg longer than the right with compensatory lateral curvature of the spine, flat-foot, slight knock-knee, knees bend far backwards (relaxed joints), thin calves, varicose veins and hallux valgus. There is positively no excuse for the enlistment of such a horrible degenerate.

Case 4. W. T., deserter, aged about 33. His father, brother and grandfather are consumptive; his mother is rheumatic and neurasthenic, and his sister is feeble. Stigmata: ears deformed, too low and too far back on the head, thyroid large and hard, chin arrested, speech lisping, enlarged mammæ, wide hips, slight knock-knee, sub-microcephalic head, face beardless and remarkably senile. He is a periodical drunkard and mentally is distorted and stupid, almost imbecile.

Case 5. E. K., deserter. He left home when fourteen years old and went West, and has been restless and roving ever since; he does not know why he deserted. Stigmata: obesity, very asymmetrical head, senile wrinkled face, large mammæ and very small bent penis, right leg longer than the left, short slightly deformed feet, depressed sternum, small teeth, partial V-shaped dental arches, asymmetrical palate, eyes small and set near together, ears asymmetrical and the left one is lower and more prominent than the right.

Case 6. J. M., convicted of fraudulent enlistment after having deserted. His father was a drunkard. He has a roving disposition and before enlistment had been a cow-boy and desperado. He associated with thieves and burglars and confessed to a murder "in self-defense." He is very quarrelsome and is covered with scars from his frequent brawls. There is an undoubted hypæsthesia, for he delights in fighting and suffers no pain when he is struck. Stigmata: semi V-shaped dental arches, con-

cal upper lateral incisors; a temporary canine is still present and the teeth are generally arrested in development, flat-foot, knock-knee, and astigmatism. A discriminating enlisting officer would have rejected this man on his physiognomy alone, for he has a sullen, surly face with coarse lips and an abnormal smile; the face is flat, asymmetrical and has prominent malars; the right eye is smaller than the left, and the left ear and eye are higher than the right. He says that he does not drink nor care for women. A few weeks after his discharge from prison he was reported to have been arrested for burglary.

Case 7. W. S., deserter and drunkard. As an excuse he claims that he was drunk when he deserted. He has a surly, ugly face which is always a cause for the rejection of a candidate. His father died of consumption and his mother is a frail neurotic with neuralgias, rheumatism and heart disease; two sisters are consumptive and two are probably neurotic. Stigmata: goitre, flat-foot and knock-knee, upper jaw and zygomata arrested, ears asymmetrical, the left being the higher, though the right eye is higher than the left, saddle-shaped dental arches, marked alveolar hypertrophy, wisdom teeth not erupted, left leg one inch too long with compensatory lateral curvature of the spine. He is left-handed and his left arm is half an inch longer than his right; the stretch of the arms is two and a half inches greater than the height; the uvula and nose are both deflected.

Case 8. G. R., deserter. Father epileptic, brother drunken, two married sisters neurotic, childless and very obese (190 and 250 pounds); six brothers and sisters have died. Claims to have enlisted from reading Captain King's novels and to have deserted because he was afraid of horses. Stigmata: face, zygomata and lower jaw arrested and asymmetrical, forehead narrow, bregma sunken, left eye higher than the right, thyroid excessive, ears prominent, nose deflected. He had indulged in great sexual excesses and was ultimately discharged for persistent neuralgias.

Case 9. F. D. claims to have deserted because he wanted to see a sick relative and could not get a furlough. Father died of consumption, mother has always been sickly, has heart disease and can not live with her second husband. F. D. is a drunkard, and on coming of age he wasted his whole inheritance, several hundred dollars, in a few months, in gambling and fast

living, after which he became a "hobo," and begged in the streets; when enlisted he was in rags and had not eaten anything for two days. Stigmata: low forehead, face and zygoma arrested, ears very degenerate and prominent, nose deflected, large hands, stretch of arms two inches more than height, slightly bow-legged, feet very broad and toes widely separated, loose-jointed; he has deafness of the left ear from scarlatina. He is a whining, complaining, stupid, egoistic, weak, plausible, unstable man, lacking self-control. He was ultimately discharged for persistent cardiac neuralgia.

Case 10. Aged 22, deserter. He is very stupid, and deserted thirty-one days after enlistment to go home to see a dying brother, but he did not ask for a furlough and makes the stupid plea that he did not know that it was wrong to desert, as the recruiting sergeant had told him that if he did not like his post of duty he could leave it. His father is a drunkard and deserted him family; his mother has heart disease and one sister is very delicate. Stigmata: body quite hairy; low forehead and deformed skull (platycephalus), face arrested and asymmetrical, right zygoma more prominent than the left; the latter is arrested; ears degenerate and prominent, thyroid excessive, irides of different colors, the right being smaller than the left, chin arrested, lower jaw narrow, tubercles on the teeth, wisdom teeth not erupted, arms three and one-half inches greater than the height, slight flat-foot and knock-knee.

As affording a curious illustration of variations which cannot properly be classed as evidences of degeneration may be mentioned the army musicians. Such high development of the music sense is far from the average—a wide variation—but the men are near or above the intellectual average. Nevertheless they have numerous traits which in a higher degree would be real stigmata. They are to a slight degree nervous, irritable, emotional, egoistic, full of strange conceits, and so different from the average soldier as to require a separate system of discipline. No army band can be kept together if managed on rigid military lines. They must be coddled. It is very noticeable, nevertheless, that they have physical stigmata in far greater numbers than the soldier in the ranks. They remind one quite forcibly of the vagaries of the musical unions in our larger cities.

American Medico-Psychological Association

PROCEEDINGS OF THE FIFTY-SIXTH ANNUAL MEETING.

TUESDAY, MAY 22, 1900.

FIRST SESSION.

The Association convened at 10 o'clock a. m. in the Convention Hall of the Hotel Jefferson, Richmond, Virginia, and was called to order by the President, Dr. J. G. Rogers, of Logansport, Indiana.

Prayer was offered by the Reverend Dr. Downman, Rector of All Saints Church.

Dr. Benjamin Blackford, of Staunton, Va., Chairman of the Committee of Arrangements, introduced the Honorable J. Hoge Tyler, Governor of Virginia, who addressed the Association as follows:

Mr. Chairman, Ladies and Members of the Medico-Psychological Association:

You come to our city just as she has closed a week of rejoicing and witness her healthful bounds to prosperity. Her river and harbor are to be improved. Her shipbuilding, now in its infancy, promises to rival that on the banks of the Clyde. Her machine-works and factories are throbbing with new life, and her people are buoyant with expectation and hope.

It is my pleasant privilege to express in a few words the welcome and cordial greeting our people are ready to extend to you. Around our State and its historical Capital City, cluster many memories that stir the heart and mind. During your stay we trust that you will look upon our quaint old Capitol building, whose walls have echoed the voice of sage and orator, where the laws of the Old Commonwealth have been framed and a Confederacy was cradled. Glance from the windows and you will see imaged in bronze the immortal Washington, and around him a group of illustrious Virginians, who not only made fame for their State, but laid broad and wide the foundations of the American Republic. Look to the right and you see a martial figure whose deeds of valor won from English admirers a statue of bronze. Down the gentle slope of the Capitol Hill you will find a monument to the man who ut-

tered the noble sentiment, that he would rather "be right than be President."

You can stand on Church Hill in old St. John's, where Patrick Henry uttered that deathless sentiment of liberty or death. Near by, on its beautiful site, towering high in the heavens, stands the monument to the soldiers and sailors of the Confederacy.

On the western border of our city rises in monumental splendor the image of Robert E. Lee, "A soldier without cruelty and a victim without murmuring."

In the tranquil shades of Hollywood you will see the pyramid of granite erected to Pickett and his men. Near by, on the banks of the James, "Where the dip of the waters is heard in the night" has been placed, by the side of her illustrious father, the pure, angelic figure of the winsome "Flower of the Confederacy," all the result of the labors of our noble Southern women.

With these and many other points of interest, I trust you will find much to charm and interest you.

From the hurried glance I was able to give the subject, I find your Association is the successor of the oldest medical organization in America. In this age of progress, it must be most gratifying to you as an association, as it is to all the people, that your profession has kept in the van-guard. "Who can minister to a mind diseased?" was questioned by a master mind, and you, gentlemen, and your profession, have done much to solve the problem. As the result of your deliberations, each year, those upon whom the hand of affliction has been laid will experience benefit and comfort.

We are glad to welcome such a representative body, coming from such a wide section. The gates of the city and the hearts of all the people are open to welcome you. Thrice welcome to our State and homes.

Dr. Blackford then introduced the Honorable R. M. Taylor, Mayor of the City of Richmond, who welcomed the Association in behalf of the city in the following words:

Mr. Chairman, Ladies and Gentlemen:

Your selection of our beautiful city for your annual meeting gives me the opportunity of thanking you in behalf of our citizens for the honor you have bestowed upon us. Your calling is allied with the tenderest affections of the human family and we claim as a part of that family that our sympathies are always with the afflicted and distressed. We know the kindly ministrations of the gentle physician, for with us live the tenderest and the best; and your coming amongst them for your deliberations shows us that our estimate of them is well grounded. I will not enter, however, into details, but simply confine myself to my mission as Mayor of welcoming you to our city and homes with God's blessing upon your noble work. May your deliberations be both pleasant and profitable.

Dr. Blackford next introduced Dr. John N. Upshur, of Richmond, who gave the following address of welcome on behalf of the medical profession of the city:

Mr. President, Ladies and Gentlemen:

On behalf of the medical profession of this Old Dominion and our Capital City, I give you cordial greeting. We feel honored that you have come to hold this annual meeting amongst us, and we feel doubly honored that you have seen fit to grace this occasion by bringing with you so many representatives of your fair women. We feel that there is much here to excite your interest, in this Capital City of Richmond, located as it is on the northern bank of the James, with traditions extending from Colonial times down to the present day. The stream that runs below yonder hill was the site of a bloody Indian battle and has taken the name of Bloody Run. It was in those days that the Anglo-Saxon conquered the Indian and showed what was to be expected of the Anglo-Saxon blood. Later, in this State, we have the Revolutionary traditions, when Cornwallis surrendered and gave birth to this immortal land. And still later, below this town, there was fought and finished that dire test of civil conflict, where brother sought the life of brother and each battled for what he conceived to be the right. And now upon this western slope in lovely Hollywood there sleep the Confederate dead and on the eastern side of this city in the National Cemetery, under the care of a paternal Government, there sleep those who were locked in fatal conflict with these men. There on these peaceful hills they keep the silent bivouac of the dead. And when we, whose faces had been turned to the setting sun, with eyes bedimmed with tears, when we with despondency turned our backs upon the west and with our heads hanging in sorrow over a lost cause and faced the east we saw there rising the morning sun. As the warrior's banner took its flight to greet the warrior's soul, there came a mental throb from the heroes who sleep their long sleep and from the sons of old Virginia who feel a double portion of the spirit of these men, which has found its earnest in the enterprise, the courage and the thrift which to-day make the mills and the factories of this town beat sweet music to the march of progress. But I cannot stop to dwell upon a theme so grateful to a citizen of Richmond as what Richmond has done. It seems but fitting that you should meet here on this your third visit to the State. Pardon me for a moment if I say that here we have energy and progress and earnest devotion to the cause of peace, that while we are not so great and our area is not so large, and while perhaps we might pale as compared with some of the cities in other parts of the land, we still claim that,

"The lily is as perfect as the oak,
The myrtle is as fragrant as the pine;
And Sharon's roses are as beautiful
As Lebanon, majestic, cedar crowned."

It was in this old Commonwealth that the first Asylum was instituted in 1769, at Williamsburg, and Virginia has cared for her insane with the earnestness and the tenderness of a mother from that day to this, and now at Staunton and Marion and Petersburg, as well as at Williamsburg, are the State Hospitals for the care of our insane. We remember too that in this State lived one of the thirteen charter members of this Society. And I would charge you that the dignity and responsibility of your branch of medicine finds its culmination in this age of progress and an increased responsibility because of the advance of medical science. No longer do we sit under the opprobrium of having to answer in the negative, "Canst minister to the mind diseased?" and hear the sneer "throw physic to the dogs," because in the progress of medicine, in the strides which have been made in gynæcology and surgery, to say nothing of modern internal medicine, you have found many causes which dethrone reason and are able to apply many remedies which are successful in restoring it to its balance, thereby giving back to society useful and happy lives. You are abreast, I know, with the progress in other branches of medicine, for while you deal with the subtle and intangible, because the causes you have to handle are often more hidden than fall to our lot, you have improved methods of investigation. But I bid you God-speed and I hope this meeting may be to you both profitable and pleasant. I can assure you that our hearts and homes are open to you. And we trust you will find it so pleasant that when you leave us to return to your homes you will feel that you wish to return to us again.

President Rogers responded as follows:

Gentlemen:

On behalf of the Association, I thank you. The welcome of the mother of States, of its time-honored and beautiful capital city, and of its renowned medical faculty, so graciously tendered by honorable representatives, is accepted with sentiments of earnest appreciation. We, individually and collectively, intend to feel for the week of our sojourn in your midst (and doubtless for some time after) that every man of us is a Virginian, by virtue of your hospitable adoption, if by no other title. Some of us are Virginians. I myself was one about one hundred and twenty years ago and am proud of it, always have been, and always will be. "To be a Roman citizen is greater than to be a king."

We are from the north, south, east, and west, and Canada but were all glad when the cry was raised in our council hall last year, "On to Richmond," and come, not with malign intent, but with outstretched hand to meet your grasp of welcome.

The American Medico-Psychological Association is the oldest continental society of medical men in America and I dare say is as respectable as any other, if not more so. Though old as a body, there is plenty of young blood in it—and more coming; the transfusion is constant from pure sources and well sterilized. Its motto is *Excelsior* and its record justifies it. The practical work of its members is largely the care of the insane of whom there are 120,000 in the land in more than 150

widely scattered hospitals, representing a vast expenditure of many millions, manned with more than 15,000 attendants and nurses, many of whom are enjoying the advantages of special training in the hospital schools established for this purpose. We have been criticised as routinists and as being neglectful of the great wealth of clinical material in our hands; yet Dr. Prudden, of New York, who is certainly good authority, states in a recent address bearing on this point, that the laboratories of our institutions for the insane are taking the lead, as a rule, in the matter of both clinical and pathological work. That research, record, and publication are being diligently maintained by the Association is well shown by its annual Transactions, its quarterly JOURNAL OF INSANITY, and by current medical literature.

For more immediate practical results, we have to offer from twenty to forty per cent of recoveries on the number annually admitted and, what is equally important, continuous care and control to the end of life of thousands who would otherwise multiply and people the land with degenerates.

Self-praise, however, is always a painful duty and therefore I will conclude by again thanking you for your kind words and by promising to be good and faithful guests while with you.

The Secretary read letters from the Westmoreland, the Commonwealth, and the Albemarle Clubs, extending the privileges of their clubs to members; also from Dr. P. B. Baringer, Chairman on behalf of the Faculty, inviting the Association to visit the University of Virginia; also from the ladies of the Confederate Memorial and Literary Society to visit the Museum of the Society.

The Secretary reported that the Council had recommended the following applications for membership:

For Active Membership.

Dr. Daniel H. Arthur.....	Gowanda, N. Y.
Dr. John A. Beauchamp.....	Nashville, Tenn.
Dr. W. F. Becker.....	Milwaukee, Wis.
Dr. J. Clement Clarke.....	Springfield, Md.
Dr. Allen R. Defendorf.....	Middletown, Conn.
Dr. Hiram Elliott.....	Troy, N. Y.
Dr. Everett Flood.....	Palmer, Mass.
Dr. Chas. M. Franklin.....	Towson, Md.
Dr. Frank R. Fry.....	St. Louis, Mo.
Dr. Alfred T. Gundry.....	Catonsville, Md.
Dr. William Hirsch.....	New York, N. Y.
Dr. Chas. W. Hitchcock.....	Detroit, Mich.
Dr. Emily P. Howard.....	Boston, Mass.

Dr. W. M. Knowlton.....	Brookline, Mass.
Dr. Chas. H. Langdon.....	Poughkeepsie, N. Y.
Dr. Chas. H. Latimer.....	St. Elizabeth, D. C.
Dr. J. M. Lewis.....	Cleveland, O.
Dr. W. P. Manton.....	Detroit, Mich.
Dr. John H. Nichols.....	Tewksbury, Mass.
Dr. H. L. Palmer.....	Utica, N. Y.
Dr. Wm. P. Spratling.....	Sonyea, N. Y.

For Associate Membership.

Dr. W. Herbert Adams.....	Danville, Pa.
Dr. Edward A. Andrews.....	Harding, Mass.
Dr. Susanna P. Boyle.....	Independence, Ia.
Dr. Walter H. Conley.....	Buffalo, N. Y.
Dr. J. H. Garlick.....	Petersburg, Va.
Dr. Horatio Gates Gibson, Jr....	Ward's Island, N. Y.
Dr. J. M. Henderson.....	Petersburg, Va.
Dr. Erving Holley.....	Willard, N. Y.
Dr. Henry I. Klopp.....	Westboro, Mass.
Dr. Chas. T. La Moure.....	Rochester, N. Y.
Dr. Wm. W. Rucks.....	Nashville, Tenn.
Dr. E. G. Stout.....	Utica, N. Y.

Letters of acceptance were read by the Secretary from Honorary Members, Drs. A. Ritti, J. B. Spence, A. R. Urquart, and Henry Hun, elected last year.

The following report was read:

To the American Medico-Psychological Association, I beg leave to present the following report:

C. B. Burr, Treasurer, in account with the American Medico-Psychological Association:

DEBITS.

Balance May 1, 1899	\$ 453 95
Certificate of Deposit Outstanding May 1, 1899.....	500 00
Certificate of Deposit (see Credits).....	400 00
Dues from Active Members	1143 00
Dues from Associate Members.....	184 00
Interest on Certificates of Deposit.....	25 86
Sale of Blackburn's Autopsies	1 00
Sale of Transactions	6 75
Sale of Index of Names	50

\$2715 06

CREDITS.

Printing Transactions, Lists of Members and Reprints..	\$ 676 67
Miscellaneous Printing (Programs, Announcements, Ballots, Receipts, etc.)	95 10
Stationery and Rubber Stamps.....	33 40
Hall Rent, Waldorf-Astoria	100 00
Railroad Instructions to Delegates.....	1 00
Postage and Revenue	149 80
International Year Book	3 20
Cuts for Transactions	25 50
Registry Cards and Cabinet	6 75
Stenographer and Clerical Hire.....	115 22
Telegraph, Telephone, and Express	12 80
Miscellaneous	3 00
Certificate of Deposit (see Debits)	400 00
Certificate of Deposit Outstanding.....	1000 00
Certificate of Deposit Outstanding.....	50 00
Balance in First National Bank, May 1, 1900.....	42 62

\$2715 06

It will be observed that the Association is in a prosperous condition financially. It has no debts and had on hand May 1, 1900, \$1092.62 in Certificates of Deposit and Cash.

Very Respectfully,

C. B. BURR, *Treasurer.*

On motion the report was accepted and referred to the Auditing Committee.

On motion of Dr. Blackford the members of the medical profession of the City of Richmond and the members of the Board of Directors of the State Hospitals, were invited to participate in the proceedings of the sessions of the Association.

The President appointed the following Nominating Committee: P. L. Murphy of North Carolina, N. H. Beemer of Ontario, F. C. Hoyt of Iowa, D. R. Burrell of New York, H. L. Orth of Pennsylvania.

A recess was then taken for the purpose of registration.

The following members were present during a whole or portion of the session:

Geo. S. Adams, Superintendent, Westboro Insane Hospital, Westboro, Mass.

H. D. Allen, Superintendent, Allen's Invalid Home, Milledgeville, Ga.

H. E. Allison, Medical Superintendent, Matteawan State Hospital, Fishkill-on-Hudson, N. Y.

C. P. Bancroft, Superintendent, New Hampshire Asylum for Insane, Concord, N. H.

N. H. Beemer, Medical Superintendent, Asylum for Insane, Mimico, Ontario.

Wm. F. Beutler, Superintendent, Asylum for Chronic Insane, Wauwatosa, Wis.

Benj. Blackford, Superintendent Western State Hospital, Staunton, Va.

G. Alder Blumer, Medical Superintendent, Butler Hospital for Insane, Providence, R. I.

Edward N. Brush, Physician-in-Chief and Superintendent, Sheppard and Enoch Pratt Hospital, Towson (Station A, Baltimore), Md.

Lewis L. Bryant, City Physician, Cambridge, Mass.

J. M. Buchanan, Superintendent, East Mississippi Insane Hospital, Meridian, Miss.

Richard Maurice Bucke, Medical Superintendent, Asylum for Insane, London, Ont. (President, 1898).

D. R. Burrell, Resident Physician, Brigham Hall, Canandaigua, N. Y.

T. J. W. Burgess, Medical Superintendent, Protestant Hospital for Insane, Montreal, Que.

C. B. Burr, Medical Director, Oak Grove Hospital for Mental and Nervous Diseases, Flint, Mich. (Secretary and Treasurer).

Eugene G. Carpenter, Superintendent, Columbus State Hospital, Columbus, Ohio.

John B. Chapin, Physician-in-Chief, Pennsylvania Hospital for the Insane, 4401 Market St., Philadelphia, Pa.

Fred. Bennett Colby, Assistant Physician, Boston Insane Hospital, New Dorchester, Mass.

G. F. Cook, Superintendent, Oxford Retreat, Oxford, Ohio.

Richard Dewey, Physician-in-Charge, Milwaukee Sanitarium, Wauwatosa, Wis. (President, 1896).

William Elliot Dold, Medical Superintendent, Oakwood Sanitarium, Lake Geneva, Wis.

Chas. A. Drew, Medical Director, Massachusetts State Asylum for Insane Criminals, State Farm, Mass.

Wm. F. Drewry, Superintendent, Central State Hospital, Petersburg, Va.

Geo. F. Edenharter, Medical Superintendent, Central Indiana Hospital for Insane, Indianapolis, Ind.

J. F. Edgerly, Superintendent, Pennsylvania Epileptic Hospital and Colony Farm, Oakbourne, Pa.

Wm. M. Edwards, Medical Superintendent, Michigan Asylum for the Insane, Kalamazoo, Mich.

Robert M. Elliott, Superintendent, Long Island State Hospital, Flatbush, Brooklyn, N. Y.

Britton D. Evans, Medical Director, New Jersey State Hospital, Morris Plains, N. J.

Orpheus Everts, Superintendent, Cincinnati Sanitarium, College Hill, Ohio.

Henry C. Eyman, Medical Superintendent, Massillon State Hospital, Massillon, Ohio.

James F. Ferguson, Physician-in-Charge, Falkirk, Central Valley, N. Y.

Edward French, Superintendent, Medfield Insane Asylum, Harding or Medfield, Mass.

James H. Garlick, First Assistant Physician, Central State Hospital, Petersburg, Va.

Arthur V. Goss, First Assistant Physician, Taunton Insane Hospital, Taunton, Mass.

Alfred T. Gundry, Attending Physician, Mrs. Gundry's Sanitarium, Catonsville, Md.

Richard F. Gundry, Superintendent, The Richard Gundry Home, Catonsville, Md.

L. V. Guthrie, Superintendent, Second Hospital for Insane, Spencer, West Va.

Wm. H. Hancker, Superintendent, Delaware State Hospital, Farnhurst, Del.

F. W. Harmon, Superintendent, Longview Hospital, Carthage, Ohio.

Arthur H. Harrington, Superintendent, Danvers Insane Hospital, Hathorne, Mass.

Isham G. Harris, Assistant Physician, Hudson River State Hospital, Poughkeepsie, N. Y.

W. H. Hattie, Medical Superintendent, Nova Scotia Hospital for the Insane, Halifax, N. S.

Gershom H. Hill, Superintendent, Hospital for Insane, Independence, Ia.

J. M. Henderson, Assistant Physician, Central State Hospital, Petersburg, Va.

Livingston S. Hinckley, Superintendent, Essex Co. Hospital for the Insane, Newark, N. J.

Aug. Hoch, Assistant Physician, McLean Hospital, Waverley, Mass.

J. A. Houston, Medical Superintendent, Northampton Insane Hospital, Northampton, Mass.

Emily Pagelsen-Howard, Trustee of Boston Insane Hospital, Boston Mass.

Eugene H. Howard, Medical Superintendent, Rochester State Hospital, Rochester, N. Y.

Herbert B. Howard, State Board of Insanity, Mass., Massachusetts General Hospital, Boston.

Frank C. Hoyt, Medical Superintendent, Iowa Hospital for Insane, Mt. Pleasant, Ia.

Arthur W. Hurd, Medical Superintendent, Buffalo State Hospital, Buffalo, N. Y.

Henry M. Hurd, Superintendent, The Johns Hopkins Hospital, Baltimore, Md. (President, 1899).

Richard H. Hutchins, First Assistant Physician, St. Lawrence State Hospital, Ogdensburg, N. Y.

Geo. F. Jelly, Member State Board of Insanity, formerly Superintendent, McLean Hospital, 69 Newbury St., Boston, Mass.

Walter H. Kidder, Assistant Physician, St. Lawrence State Hospital, Ogdensburg, N. Y.

J. J. Kindred, Physician-in-Charge, River Crest Sanitarium, Astoria, L. I., New York City.

Edward B. Lane, Superintendent, Boston Insane Hospital, New Dorchester, Mass.

J. M. Lewis, Ex-Superintendent, Cleveland State Hospital, Cleveland, Ohio.

Wm. Mabon, Medical Superintendent, St. Lawrence State Hospital, Ogdensburg, N. Y.

A. E. Macdonald, Superintendent, Manhattan State Hospital, East Ward's Island, N. Y.

John F. Miller, Superintendent, State Hospital, Goldsboro, N. C.

W. P. Manton, Gynecologist, Eastern and Northern Michigan Asylums for the Insane, and St. Joseph's Retreat, Detroit, Mich.

T. J. Mitchell, Superintendent, Mississippi State Insane Hospital, Jackson, Miss.

R. F. Monette, Assistant Physician, Manhattan State Hospital, West Ward's Island, New York City.

Dwight S. Moore, Superintendent, North Dakota Hospital for Insane, Jamestown, North Dakota.

J. M. Mosher, 202 Lark St., Albany, N. Y.

A. R. Moulton, Senior Assistant Physician, Pennsylvania Hospital for Insane, 49th and Market Sts., Philadelphia, Pa.

P. L. Murphy, Superintendent, State Hospital at Morganton, Morganton, N. C.

H. L. Orth, Superintendent and Physician, Pennsylvania State Hospital, Harrisburg, Pa.

Charles W. Page, Medical Superintendent, Connecticut Hospital for Insane, Middletown, Conn.

Chas. W. Pilgrim, Medical Superintendent, Hudson River State Hospital, Poughkeepsie, N. Y.

T. O. Powell, Superintendent, Georgia State Sanitarium, Milledgeville, Ga. (President, 1897).

R. J. Preston, Superintendent, South Western State Hospital, Marion, Va.

A. B. Richardson, Superintendent, Government Hospital for Insane, St. Elizabeth, D. C.

David D. Richardson, Resident Physician, State Hospital, S. E. Dist. Pennsylvania, Norristown, Pa.

Jos. G. Rogers, Medical Superintendent, Northern Indiana Hospital for Insane, Logansport, Ind. (President).

Edward C. Runge, Medical Superintendent, St. Louis Insane Asylum, St. Louis, Mo.

James Russell, Medical Superintendent, Asylum for Insane, Hamilton, Ont.

Wm. L. Russell, First Assistant Physician, Willard State Hospital, Willard, N. Y.

Ernest V. Scribner, Medical Superintendent, Worcester Insane Hospital, Worcester, Mass.

T. J. Searcy, Superintendent, Alabama Bryce Insane Hospital, Tuscaloosa, Ala.

G. A. Smith, Superintendent, Manhattan State Hospital, Central Islip, Long Island, N. Y.

Samuel E. Smith, Medical Superintendent, Eastern Indiana Hospital for Insane, "Easthaven," Richmond, Ind.

Geo. P. Sprague, Superintendent, High Oaks Sanitarium, Lexington, Ky.

W. P. Spratling, Medical Superintendent, Craig Colony for Epileptics, Sonyea, N. Y.

Henry Putnam Stearns, Superintendent, Retreat for the Insane, Hartford, Conn.

H. A. Tomlinson, Physician-in-Chief and Superintendent, St. Peter State Hospital, St. Peter, Miss.

Geo. T. Tuttle, First Assistant Physician, McLean Hospital, Waverley, Mass.

Ira Van Gieson, Director, Pathological Institute, New York State Hospitals, New York.

J. Percy Wade, Medical Superintendent, Maryland Hospital for Insane, Catonsville, Md.

Charles G. Wagner, Superintendent, State Hospital, Binghamton, N. Y.

Moses J. White, Medical Superintendent, Milwaukee Semi-State Hospital for Insane, Wauwatosa, Wis.

Edward W. Wiley, Superintendent, Eastern Kentucky Insane Asylum, Lexington, Ky.

Peter M. Wise, President State Commission in Lunacy, State of New York, 1 Madison Ave., New York (President-Elect).

C. R. Woodson, Superintendent, State Hospital No. 2, St. Joseph, Mo.

W. L. Worcester, Assistant Physician and Pathologist, Danvers Insane Hospital, Hathorne, Mass.

B. M. Worsham, Superintendent, State Lunatic Asylum, Austin, Tex.

Other visitors and guests of the Association were as follows:

His Excellency, J. Hoge Tyler, Governor of Virginia.

Mary A. Avery, M. D., Late Assistant, Insane Department, Philadelphia Hospital, Portland, Me.

A. P. Busey, M. D., Superintendent, Colorado State Insane Asylum, Pueblo, Col.

C. W. P. Brock, M. D., Richmond, Va.

Daniel M. Dill, M. D., Chairman Committee on County Hospitals for the Insane of Essex Co., N. J., Essex Co. Hospital for the Insane, Newark, N. J.

Rev. T. Y. Downman, Rector of All Saints Church, Richmond, Va.
L. S. Foster, M. D., Superintendent, Eastern State Hospital, Williamsburg, Va.

Wm. H. Fry, Esq., Coyners Springs, Va.

Dr. J. R. Gildersleeve, Member Board of Directors, South Western State Hospital, Va., Tazewell, Va.

M. L. Graves, M. D., Medical Superintendent, Southwestern Insane Asylum, San Antonio, Texas.

Donald C. Haldeman, Trustee, Pennsylvania State Lunatic Hospital, Harrisburg, Pa.

Horace A. Hawkins, Staff The Richmond News, Richmond, Va.

Samuel W. Hopkinson, Trustee, Danvers Insane Hospital, Hathorne, Mass., Bradford, Mass.

Benj. L. Hume, M. D., Third Assistant Physician, Central State Hospital, Petersburg, Va.

George E. Malsbary, M. D., Official Stenographer, American Medico-Psychological Association, Cincinnati, Ohio.

W. C. Orr, M. D., Interne, Central State Hospital, Petersburg, Va.

Alfred C. Palmer, M. D., Richmond, Va.

Geo. B. Remick, Director Oak Grove Hospital, Flint, Mich., Detroit, Mich.

Geo. Goss, M. D., Richmond, Va.

Samuel Small, Trustee, Pennsylvania Insane Hospital, York, Pa.

Hon. Richard M. Taylor, Richmond, Va.

C. N. Thoman, Member of Board of Managers, State Hospital for Insane, No. 2, St. Joseph, Mo.

J. N. Upshur, M. D., Emeritus Prof. of Practice of Medicine, Medical College of Virginia, Richmond, Va.

The Address of the President, entitled "A Century of Hospital Building for the Insane," was then read.

DR. HENRY M. HURD:—We have listened with great interest and profit to this excellent review of building provision for the insane. The suggestions which have been made I am sure will bear abundant fruit in the future in more perfect buildings for the care of insane patients. I rise to move that a vote of thanks be extended to Dr. Rogers and that a copy be requested for publication in the JOURNAL OF INSANITY.

The motion was unanimously adopted.

FIRST DAY—SECOND SESSION.

The Association was called to order by the President at 3.10 p. m.

The following papers were read:

"Two Hundred Operative Cases—Insane Women," by R. M. Bucke, M. D., London, Ontario. Discussed by Drs. W. P. Mantton, C. R. Woodson, J. Russell, A. B. Richardson, William Mabon, T. O. Powell, and R. M. Bucke in closing.

"Is the Anglo-Saxon Degenerating?" by J. Russell, M. D., Hamilton, Ont.

"The State of New York—The Pathology of Insanity," by P. M. Wise, M. D., New York. Discussed by Dr. E. C. Runge.

"Degeneracy from a Philosophical Point of View," O. Everts, M. D., College Hill, O.

FIRST DAY—THIRD SESSION.

The Association convened at 8.15 p. m.

The following papers were read:

"The Study of Clinical Psychiatry," by Aug. Hoch, M. D., Waverley, Mass. Discussed by Drs. H. M. Hurd, E. C. Runge, and H. A. Tomlinson.

"The Colonization of Certain Classes of the Chronic Insane, with Suggestions and Illustrations from the Craig Colony for Epileptics" (Illustrated by lantern slides), by W. P. Spratling, M. D., Sonyea, N. Y.

A vote of thanks was unanimously tendered to Dr. Spratling upon the conclusion of his paper.

WEDNESDAY, MAY 23, 1900.

SECOND DAY—FIRST SESSION.

The Secretary read a letter from the Secretary of the American National Committee of the Thirteenth International Medical Congress requesting the payment of twenty-five (\$25.00) dollars to defray the expenses of the Committee, of which the President of the American Medico-Psychological Association, by virtue of his office, had been constituted a member.

THE SECRETARY:—The President asks that I make an announcement concerning the recent action of the Executive Committee of the American National Committee of the Thirteenth International Medical Congress at Paris in giving this Association representation in the American Committee of the Congress. We have had no official notice of such action.

DR. HENRY M. HURD:—There probably has not been time to send such notice. At the Washington meeting of the American Committee, however, such representation was unanimously accorded to this Association.

The request for an appropriation to defray the expenses of the Committee was thereupon referred to Council.

DR. BLACKFORD:—As Chairman of the Committee of Arrangements I regret to say that we are much disappointed in not being able to take the members of the Association to Old Point, but we were obliged to relinquish our purpose because it was thought that time could not be spared from the sessions. To-morrow night we propose to give a reception at the Jefferson, with a cake walk and other accompaniments which we trust will entertain the members.

The following report of the AMERICAN JOURNAL OF INSANITY was presented by Dr. Hurd:

Baltimore, May 16, 1900.

To the Members of the American Medico-Psychological Association.

Gentlemen:—I present herewith a statement of the receipts and disbursements in behalf of the JOURNAL OF INSANITY for the journal year from May, 1899, to May, 1900, by which it will be seen that the receipts from all sources have been \$2626.27; the expenses have been \$2221.23, leaving a balance on hand of \$405.04. In addition to this amount there is a sum of \$118.50 due for advertisements which are collectable, and a small sum due for unpaid back subscriptions which are probably doubtful.

The four numbers of the JOURNAL during the past year have been issued with a fair degree of punctuality, and I think compare favorably with the publications of any previous year. It is evident that there is an increasing amount of scientific work which seeks publication through the columns of the JOURNAL. Much of the scientific work published is of a high character, and all of it is most encouraging to those members of the Association who desire to see its work aspiring to a high plane of scientific attainment.

The vouchers covering all the expenses are submitted herewith. I would ask that they be referred to the auditors for report.

I would again urge as in previous years that the members of the Association bear in mind that the JOURNAL belongs to the Association, and is the best organ for those members who desire to publish. I also would call attention to the fact that in order that it may reach its full development we need more money and consequently should have more advertisements. I would ask the members of the Association to use their best efforts to procure advertisements for the JOURNAL, and in making pur-

chases to bear in mind those firms who show their appreciation of our work by giving advertisements to the JOURNAL.

Very respectfully submitted,

HENRY M. HURD,
In behalf of the Board of Editors.

The report was referred to the auditors.

DR. WISE:—I desire before this subject passes to move a vote of thanks to the Board of Editors for the excellent work they have accomplished on the AMERICAN JOURNAL OF INSANITY during the past year. Carried.

The applicants for membership, formally reported upon by the Council at yesterday's session, were elected unanimously by ballot.

The following report of the Nominating Committee was presented by Dr. P. L. Murphy:

The Nominating Committee beg to nominate the following gentlemen as officers of the Association for the ensuing year:

President, P. M. Wise, of New York.

Vice-President, R. J. Preston, of Virginia.

Secretary and Treasurer, C. B. Burr, of Michigan.

Councilors, S. E. Smith, of Indiana; W. Mabon, of New York; Jas. Russell, of Ontario; A. B. Richardson, of the District of Columbia.

Auditors, Wm. M. Edwards, of Michigan; W. B. Lyman, of Wisconsin.

P. L. MURPHY, Chairman of Committee.

The report was adopted and the Secretary was authorized to cast the ballot of the Association for the election of the officers named.

The following papers were read:

"The Insane in General Hospitals," by J. M. Mosher, M. D., Albany, N. Y. Discussed by Drs. W. L. Worcester, H. M. Hurd, P. M. Wise, A. B. Richardson, A. P. Busey, H. A. Tomlinson, C. R. Woodson, W. P. Spratling, Richard Dewey, and by Dr. Mosher in closing.

"Some Statistics and a Partial History of the Insane in Virginia," by R. J. Preston, M. D., Marion, Va.

"Clinical Study of Thyroid Extract," by W. F. Drewry, M. D., and J. M. Henderson, M. D., Petersburg, Va. (Read by title.)

"Myxoedematous Insanity," by H. Ernest Schmid, M. D., White Plains, N. Y. (Read by title.)

"A Clinical Case," by A. R. Moulton, M. D., Philadelphia. Discussed by Dr. E. N. Brush, Dr. C. A. Drew and Dr. Moulton in closing.

"Status Epilepticus: Its Nature and Pathology," by Thomas P. Prout, M. D., Morris Plains, N. J., and L. P. Clark, M. D., Sonyea, N. Y. (Read by title.)

"Epilepsy in the Insane," by Isham G. Harris, M. D. Discussed by Dr. W. L. Worcester.

SECOND DAY—SECOND SESSION.

The Association convened at 8.45 p. m.

The Annual Address, "The Effect of Freedom upon the Physical and Psychological Development of the Negro of the South," was delivered by Dr. J. Allison Hodges, of Richmond.

Upon motion of Dr. Powell, a vote of thanks was tendered to Dr. Hodges for the admirable, eloquent, learned and able address.

THURSDAY, MAY 24, 1900.

THIRD DAY—FIRST SESSION.

The Association was called to order at 10.20 a. m.

The following report of Council was presented by the Secretary:

The Council would respectfully report that the request of the Committee of Arrangements for the Thirteenth International Congress has been complied with so far as the action of the Council is concerned, and that the Council would recommend to the Association an appropriation of \$25 to assist in defraying the expenses of the Committee.

Further, the Council reports that it recommends that this Association become affiliated with the American Congress of Physicians and suggests that Dr. E. N. Brush, of Baltimore, be appointed a Committee of one to conduct negotiations in reference to the matter and to perfect the arrangements.

As to the time and place of meeting, the Council has suggested Milwaukee, Wisconsin, as the place of the next meeting, and nominates Dr. Richard Dewey, Dr. W. A. Gordon, Dr. W. B. Lyman, Dr. M. J. White, and Dr. William F. Beutler, as a Committee of Arrangements and would leave with the Committee the naming of the date.

Upon motion, the recommendations of Council were taken up in their order.

"That the request of the Committee of Arrangements for the Thirteenth International Congress has been complied with so far as the action of the Council is concerned, and that the Council would recommend to the Association an appropriation of \$25.00 to assist in defraying the expenses of the Committee."

The appropriation of \$25.00 was made as requested.

"Further, the Council reports that it would recommend to the Association that this Association become affiliated with the American Congress of Physicians, and would suggest that a Committee of one, Dr. Brush, be appointed to negotiate in reference to the matter and perfect the arrangements."

The recommendation of the Council was adopted.

"The Council suggests Milwaukee, Wis., as the place of the next meeting, and nominates Dr. Richard Dewey, Dr. W. A. Gordon, Dr. W. B. Lyman, Dr. M. J. White, and Dr. William F. Beutler, as a Committee of Arrangements, and would leave with the Committee the naming of the date."

The recommendation of Council was approved and the above-named members were constituted a Committee of Arrangements.

The following papers were read:

"Separate Provision for Tuberculous Patients in State Hospitals for the Insane," by A. H. Harrington, M. D., Hathorne, Mass. Discussed by Drs. G. H. Hill, P. M. Wise, and H. A. Tomlinson.

"Primary Dementia," by Geo. P. Sprague, M. D., Lexington, Ky.

"Dementia Præcox," by G. H. Hill, M. D., Independence, Ia.

The papers of Dr. Sprague and Dr. Hill were discussed by Drs. C. A. Drew, E. C. Runge, A. H. Harrington, C. W. Page, and H. A. Tomlinson.

"An Analysis of One Hundred Cases of Acute Mania," by E. N. Brush, M. D., Towson, Md. (Read by title.)

"The Study of a Year's Statistics," by Chas. W. Pilgrim, M. D., Poughkeepsie, N. Y. Discussed by Drs. C. B. Burr, P. M. Wise, A. B. Richardson, W. L. Worcester, E. N. Brush, and B. D. Evans.

THIRD DAY—SECOND SESSION.

The Association was called to order at 2.30 p. m.

The following papers were read:

"What Conditions, if any, Would Warrant the State in Taking Life because of Incurable Mental Disease or Defect," by Richard Dewey, M. D., Wauwatosa, Wis. Discussed by Drs. E. C. Runge and T. O. Powell.

"Legal and Medical Insanity—Reflections on the Recent Trial and Conviction of Bradford P. Knight of Augusta, Me.," by C. P. Bancroft, M. D., Concord, N. H. Discussed by Drs. B. D. Evans, Geo. F. Jelly, and W. H. Hancker.

"The Influence of Military Campaigns in Tropical Climates in the Production of Insanity," by A. B. Richardson, M. D. Discussed by Dr. B. D. Evans.

"Mental Responsibility," by Chas. W. Hitchcock, M. D., Detroit, Mich. (Read by title.)

"Reciprocal Relations," by W. B. Lyman, M. D., Mendota, Wisconsin. (Read by title.)

"Surgical Operations in Hospitals for the Insane," by Wm. Mabon, M. D., Ogdensburg, N. Y. Discussed by Drs. B. D. Evans and W. P. Manton.

"Food and Dietaries in Hospitals for the Insane," by W. H. Kidder, M. D., Ogdensburg, N. Y. Discussed by Drs. P. M. Wise and Wm. Mabon.

The following report from the Auditors was read:

The statement of the editors of the *AMERICAN JOURNAL OF INSANITY*, showing an itemized list of expenditures, and vouchers for each has been examined and found correct.

The accounts of the Secretary and Treasurer, including books showing receipts and vouchers for all expenditures, have been examined and found correct.

T. J. MITCHELL,
WILLIAM MABON,
Auditors.

FRIDAY, MAY 25, 1900.

FOURTH DAY—FIRST SESSION.

The Association convened at 10 a. m.

DR. C. B. BURR:—At the St. Louis meeting Dr. Beemer spoke of the publication of a map and chart by the Association and descriptive matter in respect to the hospitals for the insane in the United States and Canada. The plan as outlined to me

seemed to be a good one. He has begun this work but it has not yet reached the degree of perfection he would like before publishing. I would move that when this work is thoroughly done as Dr. Beemer desires, the matter be referred to the Council with authority to publish it if the Council in its judgment thinks it expedient. Carried.

The following memorial notices were read by title and ordered printed in the Transactions:

Dr. Chas. Inslee Pardee, by Dr. A. E. Macdonald; Dr. J. D. Lomax; Dr. A. H. Witmer, by Dr. A. B. Richardson; Dr. C. C. Eastman, by Dr. C. G. Wagner.

The following papers were read by title:

"Guardian Societies for the Insane," by Jules Morel, M. D., Mons, Belgium.

"Some Forms of Cerebral Seizures in Insanity," by I. H. Neff, M. D., Pontiac, Mich.

"Reflections on Traumatic Hysteria," by C. B. Burr, M. D., Flint, Mich.

DR. HENRY M. HURD:—It may be remembered that at the last meeting of the Association a committee was appointed to consider the preparation of a history of the Association. We ought to have a report of that committee. Does the Secretary know who compose the committee?

THE SECRETARY:—Dr. Brush was Chairman.

DR. HURD:—I hope that the Committee will soon be able to make a report.

THE PRESIDENT:—Gentlemen of the Association, I have the honor to introduce your next President, Dr. Peter M. Wise, of New York.

DR. WISE:—Members of the Association: I cannot express in proper terms the appreciation which I feel of the great honor you have conferred upon me. I sincerely hope that the next meeting of the Association may be one of our most successful meetings, and looking toward that consummation I trust that the members of the Association will commence to prepare for it as soon as they reach home. In expressing this wish I feel that I speak on behalf of the Secretary. The Secretary told me yesterday that it was sometimes necessary to spur up the members in order to make up a program, not because you do not have in mind the

work, but simply because you put it off from day to day, until you receive a notice. I hope the papers for the next meeting will be offered in sufficient number to render a request from the Secretary unnecessary. Allow me to again thank you for the honor you have conferred upon me.

The following resolution was unanimously adopted:

"Resolved, That the hearty thanks of the Association be extended to the Governor of the State, the Mayor of the City, and the medical profession generally, for their hearty welcome and boundless hospitality; to the members of the Committee of Arrangements and their ladies for the delightful entertainment and for the provision for the comfort and well-being of the members so abundantly made; to the Jefferson for the use of its excellent Convention Hall and for its hospitality to the Association; to the Commonwealth, Westmoreland, and Albemarle Clubs for the privileges of these clubs respectively; to the ladies of the Memorial Association for an invitation to visit the Confederate Museum; to the University of Virginia for the invitation presented to visit that historic and time-honored institution; to the Trustees of the various State Hospitals for the insane in the State for their invitations to visit the different institutions, and for the generous hospitality accorded to the members and their wives; to the press for the excellent reports of the meeting; to the officers of the Association for their untiring efforts on behalf of the Association, and to all who have assisted in making the Fifty-Sixth Annual Meeting the most successful in the history of the Association.

DR. ROGERS:—The Fifty-Sixth Annual Meeting of the American Medico-Psychological Association is about to close. That it has been both pleasant and profitable there is certainly no question. I desire to take this, my first opportunity, to express my earnest appreciation of the evidence of your confidence and esteem in choosing me as your President for this meeting. Your kind and lenient cooperation has made my duty both easy and agreeable. With the wish that the success and prosperity of the Association may continue for a thousand years, I declare it adjourned to meet at Milwaukee next year on a date to be fixed as provided.

C. B. BURR, *Secretary.*

Notes and Comment

TRAINED NURSES FOR THE INSANE.—The need of trained nurses in the care of the insane is now generally recognized, and the number of institutions in which some sort of a course of instruction is not provided is a comparatively small one. That the system is not perfect or even satisfactory is amply attested by the agitation over the subject, and by constant comparison of practice and methods. The primary object of the training of nurses is naturally the improvement of the service, and the earlier so-called training schools offered instruction upon the mental manifestations of insanity. Some knowledge of delusions and hallucinations and of the sources of action and motives of patients was imparted to attendants, and greater sympathy and toleration resulted. During the decade in which training schools have been developing, the problems of the physical disorders accompanying mental diseases have been presented, and it has been necessary to obtain the services of nurses with general medical knowledge. Efforts to meet this want have been in some degree successful, but many obstacles are to be overcome, the chief of which are those relating to an equalization of the status of the nurse trained in a hospital for the insane with that of the general hospital nurse. This difficulty has in the past assumed large proportions in Great Britain, and has been made the subject of discussion in the British Association, which has been already noted in the JOURNAL (January, 1898).

In the United States the contest has not been openly waged, probably because there is yet little organized effort on the part of nurses in any department, but the movement toward association, and even legislation, has been suggested. In view of the probable discrimination against nurses specially trained in insanity, an early and energetic effort should be made toward the establishment of a standard of training, which shall meet successfully hostile criticism. The various phases of the subject have been

considered by Dr. Cowles, and are presented in a late report of the McLean Training School, from which the JOURNAL quotes:

"There must be improvement in the training schools; an extension of the course of instruction to three years is already becoming general. This requiring longer service in the hospitals must make it better; and a final adjustment of the elements of the problem may be confidently expected that will be good and equitable for all concerned. It should be remembered that even now the training system is only at the beginning of its establishment as an essential part of the organization of hospitals for the insane. There is yet much to learn in developing the best methods.

"It is not to be wondered at that there is yet a very inadequate appreciation in 'the nursing world' of the peculiar value of this training, and what it does for the nurse. It is quite the fashion to minimize the qualifications of the nurses trained in the care of the insane and to argue that in these hospitals it is possible or proper to undertake to teach only the special form of nursing required in them. It sounds well theoretically to say that the foundation of a nurse's instruction should always be laid in a general training, and that afterwards the 'specialties' should be added, by having, for example, the general hospital graduate go to a lying-in hospital for a short term of post-graduate study and in like manner to a hospital for mental diseases. But experience has given an emphatic answer to this proposition as respects the nursing of the insane. The simple fact is that those once trained in bodily nursing in general hospitals very rarely have any interest in mental nursing. In a certain way they are led to dislike it, for the reason that it is less objective, and there seems to the general nurse to be little to do for a patient who has no appreciable bodily ailment. The only way in which the hospitals for the insane can get a sufficient supply of nurses is by training them from the beginning of their studies; and the only way to give this training a value that will cause it to be sought by competent persons is to make it include all that is possible of general nursing. The results are so good for nurses who receive only the education thus afforded that they prove to be acceptable and successful, not only in 'mental cases,' but in medical cases generally. The fact that they do not profess to be surgical nurses is no more a reason for denying them full recognition as trained nurses than there would be for insisting that all physicians must be surgeons also to entitle them to professional standing. Such a nurse often supplements her training by terms of service in a general hospital, a lying-in hospital, or in other special work. The results are so satisfactory, under all these circumstances, that there must be some fallacy in the dictum too often made that such an order of education is all wrong. The error evidently lies in the assumption that the word 'general,' as indicating the scope of the work of general hospitals, has the same wide meaning with respect to an education in general nursing, as it is taught in such hospitals. The implication is that such a training is

complete in itself by including all that is elementary and preparatory which can be regarded as useful and desirable. The answer to this assumption is that the general hospital courses of training, as they have been constituted so far in their developmental stage, can be improved by extension at both ends. Certain preparatory acquirements would have an essential value in the education of every nurse for the best that is in her profession; this preliminary education is now crowded out by the too early demand in the general hospitals for applied knowledge of the mechanical operations of nursing; and the pupil nurse passes over too lightly, among other things, the value of her personal relation to the individual patient.

"The truth is that there are 'sick' people enough in large hospitals for the insane to afford sufficient practical work for training in the general principles and manipulations of nursing; this, with the didactic teaching, which can be practically the same as in a general hospital, lays a good foundation of an education in the principles of the art of nursing. Such a course does not differ in practical effect from the method of the medical student who proceeds later to the application of principles in his special clinical studies. *The true philosophy of the matter lies in the fact that work in mental nursing trains the woman; it is a most general and fundamental training of character, self-control, and the Christian graces.* It is the practice, which has a formative influence of inestimable value, of consideration of the thoughts and feelings of others. A nurse of large experience in mental nursing, after a term of service in a general hospital, was asked what the difference was between the two kinds of nursing. She answered: 'In a general hospital the patient must please the nurse; with the insane the nurse must please the patient.'

"The value of the work of a nurse lies largely in many cases, and almost wholly in others, in the personal relation of the nurse to the patient. The nurse experienced in mental nursing has acquired an education of her personality that better fits her for getting on with all people sick or well; it is proceeding from the *general* to the *special* when she enters upon the more particular application of principles in the practical details of general nursing. The didactic and class instruction can be made to meet the requirements very completely even where the work of mental nursing predominates; and it is also proceeding from the general to the special in this regard for the application of principles in bodily nursing, to come later in the order of the course of instruction.

"It is fair to say that experience in mental nursing is absolutely necessary before one is qualified to form a just estimate of its requirements and educational value, and of the true place it is entitled and destined to hold in the more perfect methods of training which all are striving to attain."

DR. PETER M. WISE, the recently elected President of the American Medico-Psychological Association, was born in the

town of Clarence, Erie County, N. Y., March 7, 1851. His father was a farmer and he was brought up on the farm, attending the district schools and the Clarence Academy and Parker Classical Institute until 15 years of age. At this time his father died suddenly, as the result of an accident, and upon the settlement of his estate, it was found that the family resources were inadequate to the college education which had been anticipated for the aspiring son. Although prepared to enter college, he went to work in a country store and the post office at East Hamburg, N. Y., and seized every opportunity for self-education. Thus, at the age of 19, he was ready to enter upon the study of medicine. His medical course was taken at Albany Medical College and the Medical Department of the University of Buffalo, where he graduated second in his medical class. After graduation, he was appointed interne in the City Hospital of St. Louis, and at the close of six months' service was selected by the St. Louis Board of Health to be chief executive officer of the smallpox colony, with 600 patients, which was the outgrowth of a severe epidemic in that city. When he resigned this position, because a municipal law required a residence of one year in the city as a condition of eligibility to any municipal office, he was appointed city physician to supervise the epidemic and vaccination, a post which was free from the above-named restriction. At the close of this service, he returned to Buffalo, and was soon called to the position of assistant physician at the Willard Asylum for the Insane, now the Willard State Hospital. He served in this capacity for twelve years under Dr. J. B. Chapin, and during his absence he was in charge of the institution, at that time the largest State Asylum in America. In 1882 he spent some months in Europe visiting the institutions for the insane of Great Britain and the Continent, and upon his return published an interesting monograph on the care of the insane in Europe. At this time he became much interested in a class of the insane for which proper accommodation and care were nowhere provided, namely, infirm and terminal cases, unable both physically and mentally, to attend to their personal wants, generally known as the filthy or untidy class. He had found that the same problem existed in Europe, and he set himself to the task of solving it. On the retirement of Dr. John B. Chapin from the

superintendency of the Willard State Hospital, Dr. Wise was unanimously called to succeed him. Prior to this, he had been unanimously elected Superintendent of the State Asylum for Idiots at Syracuse, by its Board of Managers, to succeed the late Dr. H. B. Wilbur, but had declined the position. Accepting the former position, he had an opportunity to carry out his plans for the better care of untidy patients, and constructed the Infirmary of the Willard State Hospital, which has since been declared the first exposition of infirmary care for the insane in any country, and is now universally adopted. Within one year after the construction of the Willard Infirmary, four States adopted his plans without modification. As lack of funds precluded the employment of an architect, he personally prepared his own plans and specifications. With some help by patients' labor, he constructed a building for 150 patients at a per capita cost of \$200, a financial result which has never since been attained.

In 1886 he was appointed by Governor Hill a commissioner to locate and design an asylum for the insane in Northern New York. He was appointed by the commission a committee to make designs and plans, and spent several months in visiting the more recently constructed asylums. The designs thus prepared were substantially adopted in the construction of the St. Lawrence State Hospital at Ogdensburg, which stands to-day in the estimation of many psychiatrists as the foremost hospital of its kind in the world. In 1888, he received and declined a unanimous call to the superintendency of the new hospital. It was not until 1890 that, upon representations from the Board and the State Architect, that his services were essential to the proper building and organization of the hospital, he determined to accept the call. This great hospital was completely organized and equipped during his superintendency. He carried out in this organization, and particularly in creating a high standard of nursing for the insane, a series of reforms which have modified the practice of mental medicine throughout the United States. In 1896, Governor Morton offered him the presidency of the State Commission in Lunacy, which he accepted at the solicitation of the remaining commissioners, his predecessor, Dr. MacDonald, his fellow superintendents and others. He had previously given to the State, in asylum management, nearly 25

years of active service. As President of the State Commission in Lunacy he has utilized his large experience to promote the better management of State institutions, and has shown a large grasp of the many problems which have been the outgrowth of the State Care Act.

The medical journals attest the frequency of his contributions to the literature of medicine, and his official reports have been very voluminous. He has published, through G. P. Putnam's Sons, a text-book for Training Schools for Nurses, in two volumes, and is soon to publish a treatise on the Nature and Treatment of Insanity.

He is a member of the New York State Medical Society; the American Medico-Psychological Association; the New York County Medical Society; various other county societies; is ex-President of the Seneca County Medical Society, the Buffalo Alumni Association, and the St. Lawrence County Society. He was made President of the American Medico-Psychological Association at the recent meeting in Richmond. He was a member of the Ninth International Medical Congress, and is also honorary member of many foreign societies.

He was professor of Psychiatry in the University of Vermont for four years, retiring upon his appointment as a Commissioner in Lunacy. He has been offered other positions on college staffs, which he has felt constrained to decline. He has never sought prominence, but has accepted those duties which appealed to him as likely to lessen, through their discharge, something of the human suffering and sorrow, which it is the privilege of every physician to relieve.

THE PATHOLOGICAL INSTITUTE OF THE STATE OF NEW YORK.
—We publish elsewhere the paper presented to the Richmond meeting of the American Medico-Psychological Association by Dr. P. M. Wise, President of the State Commission in Lunacy; also the protest prepared by Dr. Van Gieson, and very generally signed by eminent pathologists both in this country and Europe, and finally the very temperate statement of the superintendents of the New York State Hospitals as to their conceptions of the functions of a State pathological institute. A second protest has also been published, signed largely by laboratory workers abroad,

which contains such unjust and absurd charges against Dr. Cowles and Dr. Wise as to be unworthy of serious consideration. The many eminent signers abroad can hardly have been in a position to know all the facts of the case and must have acted from *ex parte* information. All persons concerned in the controversy seem substantially agreed as to the necessity of combining research and practical pathological work, and their contention seems mainly as to the methods of best conducting the work. All who sympathize with research work in connection with institutions for the insane can but deplore the present unfortunate state of things. It would seem that certain general principles ought to govern the whole matter. There should be facilities for clinical work as well as for pathological investigation. For the proper prosecution of pathological work, and especially to furnish a stimulus for research work, a certain amount of teaching is absolutely necessary. This has been the experience of laboratories everywhere. The laboratory which does not provide for a certain amount of teaching fails to prepare the way for research work. Hence, theoretically and practically, it may be urged that the New York Pathological Institute will be most efficient if, in addition to clinical facilities, there be given opportunities for teaching and for research work. The difficulty in New York is largely one of adjustment between the present Pathological Institute and the State Commission in Lunacy, and for this reason the profession at large throughout the United States or throughout the world cannot be personally interested in the outcome. As long as the scope of the Pathological Institute includes the above-named essentials it is unimportant who shall do the work.

We have no sympathy with the innuendoes that the State Commission in Lunacy, either personally or through the committee appointed by it to investigate the affairs of the Pathological Institute, endeavored to destroy its work, nor can we imagine for a moment that any influences have been brought to bear in the Legislature by the Commission to withhold funds from it. Legislatures, unfortunately, do not always deal liberally with institutions arranged for purely scientific work. It does not require any impugning of the motives of the Commission to account for the cutting down of the appropriation for the coming year. As we understand the situation, it is obligatory upon the Commis-

sion to rearrange the present quarters of the Pathological Institute, and that being the case, the Commissioners must do the best they can under the altered circumstances, and no representations or protests, however vigorous, can probably alter the circumstances.

There seems to be an honest difference of opinion between the Commission in Lunacy and the present director of the Pathological Institute as to method to be pursued. More than two years ago, in the columns of the JOURNAL, we urged that time be given to the Pathological Institute to work out its problems, and to adjust itself to new conditions of work. We would still urge upon both parties patience and forbearance.

THE PATHOLOGICAL INSTITUTE OF THE NEW YORK STATE HOSPITALS.—The wishes of the Superintendents of the New York State Hospitals in regard to the Pathological Institute have found unanimous expression in the following recent communication to the State Commissioners in Lunacy:

"In view of the recent discussions as to the work of the Pathological Institute of the New York State Hospitals, the undersigned superintendents of the hospitals request the Commission in Lunacy to make such modifications of the work as will bring about a closer relationship between the clinical and pathological departments, while affording at the same time the widest scope to original research work. We desire the encouragement and advancement of such original work, and believe that the importance of clinical investigation should receive recognition, having in view the welfare of the insane and the advancement of science.

"Charles W. Pilgrim, Supt., Hudson River State Hospital; Arthur W. Hurd, Supt., Buffalo State Hospital; Charles G. Wagner, Supt., Binghamton State Hospital; William Mabon, Supt., St. Lawrence State Hospital; George A. Smith, Supt., Central Islip, Manhattan State Hospital; E. H. Howard, Supt., Rochester State Hospital; A. E. Macdonald, Supt., Manhattan State Hospital, East; H. E. Allison, Supt., Matteawan State Hospital; R. M. Elliott, Supt., L. I., Brooklyn, State Hospital; H. L. Palmer, Supt., Utica State Hospital; S. H. Talcott, Supt., Middletown State Hospital; W. A. Macy, Supt., Willard State Hospital; E. C. Dent, Supt., Manhattan, West, State Hospital; O. M. Dewing, Supt., L. I., Kings Park, State Hospital; D. H. Arthur, Supt., Gowanda State Hospital."

THE RICHMOND MEETING OF THE AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.—The annual meeting of the Associa-

tion had many delightful features and pleasant surprises. Owing to two postponements of the date of meeting it was generally feared that the usual number in attendance upon the meetings would be much reduced, but the fear was not justified by the event, the attendance being considerably larger than at any previous meeting. This is to be explained by the universal desire of those members of the Association who live in Canada, the North and the West to visit a city of such historic interest as Richmond. The programme, too, proved to be one of unexpected interest and profit. The Jefferson afforded many facilities for a successful meeting, and the comfort of all in attendance was much increased by the facilities which the hotel afforded for dining in the open air and by the large, airy convention hall in which the meetings were held. The members of the committee of arrangements showed a jealous desire to preserve the reputation of Richmond for hospitality and good cheer. From every point of view the meeting must be considered one of unusual interest.

THE PROTEST OF THE FRIENDS OF THE PRESENT MANAGEMENT OF THE N. Y. PATHOLOGICAL INSTITUTE.—The following "Protest" was presented at the Richmond meeting of the Association by Dr. P. M. Wise as an addendum to his paper:

New York, May 17, 1900.

Inasmuch as it is well known that the original purpose in the foundation of the Pathological Institute of the New York State Hospitals, was the scientific investigation of psychiatry, and that the former attempts of the Hospitals to pursue scientific investigation in the asylum under the direction and control of the Superintendents "produced no results of scientific value in the line of original work." (See Second Annual Report, State Commission in Lunacy, pp. 147-162): and since

We believe that the comprehensive lines of research formulated by the Director of the Institute and his associates are eminently suitable for this purpose and that the work of the Institute is most promising for the progress of psychiatry,

We, the undersigned, therefore deem most unfortunate any effort to interfere with or subvert the scientific work of the Institute, and we furthermore disapprove of any plan to limit the work of the Institute to the Asylums, and put the work of the Institute under the control and direction of Superintendents, and to divert the energies of this research center into routine educational schemes. And, furthermore, we deplore

the methods in crippling the scientific activity of the Institute and in depriving it of sufficient maintenance and adequate quarters in the center of the city, by a legislative enactment forbidding the payment of rent.
Signed:

Edward D. Fisher, M. D.	J. George Adami, A. M., M. D.,
Graeme M. Hammond, M. D.	and R. S. E.
Charles L. Dana, M. D.	Daniel Lewis, M. D.
Pierce Bailey, M. D.	Egbert Le Fevre, M. D.
Frederick Peterson, M. D.	George F. Shrady, M. D.
A. Jacobi, M. D.	J. Riddle Goffe, M. D.
Francis Delafield, M. D., LL. D.	Edward K. Dunham, M. D.
Albert H. Buck, M. D.	Herman M. Biggs, M. D.
E. L. Trudeau, M. D.	Wm. H. Park, M. D.
J. Frank Valentine, M. D.	Jacques Loeb, M. D.
George L. Peabody, M. D.	E. C. Spitzka, M. D.
W. H. Draper, M. D.	Frank C. Foster, M. D.
W. H. Thomson, M. D.	James L. Hyslop, Ph. D.
G. Langmann, M. D.	F. G. Novy, M. D.
John F. Erdmann, M. D.	Theophile Klingmann, Ph. D.,
Wm. Le Boutillier, M. D.	M. D.
John H. Huddleston, M. D.	Wm. J. Herdman, M. D.
Alexander Lambert, M. D.	F. W. Langdon, M. D.
Francis P. Kinnicutt, A. M.,	Burt G. Wilder, M. D.
M. D.	Morton Prince, M. D.
Wm. A. Lody, M. D.	Philip Coombs Knapp, A. M.,
Wm. H. Welch, M. D., LL. D.	M. D.
J. H. Linsley, M. D.	Chas. J. McKenna, Ph. D.
Hugo Munsterberg, M. D., Ph. D.	Wm. McMurtrie, Ph. D.
Hugh T. Patrick, M. D.	William W. Johnston, M. D.
Henry J. Berkley, M. D.	Edward G. Janeway, M. D.
Edw. B. Angell, M. D.	Wm. Roumaine Newbold, Ph. D.
D. Hunter McAlpin, M. D.	Edwin G. Conklin, M. D.
S. Weir Mitchell, M. D.	Charles W. Burr, M. D.
Wharton Sinkler, M. D.	F. Savary Pearce, M. D.
Charles K. Mills, M. D.	Thos. H. Montgomery, Jr., Ph. D.
George M. Gould, M. D.	Wm. G. Spiller, M. D.
Reginald Fitz, M. D.	Lightner Witmer, Ph. D.
James J. Putnam, M. D.	C. F. Chandler, Ph. D., M. D.
William N. Bullard, M. D.	J. T. Eskridge, M. D.
H. P. Bowditch, M. D., LL. D.	

THE RETIREMENT OF DR. CURWEN.—The retirement of Dr. John Curwen from the administrative responsibility of the Warren State Hospital removes a familiar and noteworthy figure from the ranks of active workers in the American Medico-Psy-

chological Association. Born in 1821, educated in Arts at Yale College, and in Medicine at the University of Pennsylvania, he commenced a long service in hospitals for the insane at the Pennsylvania Hospital in 1844, where he served as an assistant physician until 1849. In 1851 he was appointed superintendent and physician-in-chief at the Pennsylvania Lunatic Hospital at Harrisburg and continued in service there for thirty years. Upon his retirement from this hospital in 1881 he was elected to a similar position in connection with the Warren State Hospital and served continuously until his retirement upon the first of the present month. He also served as one of the Commissioners to locate and erect first the State Hospital at Danville, Penn., and afterwards the Hospital at Warren. In Pennsylvania, for upwards of 50 years, he has interested himself continuously in promoting the better care of the insane, and by voice and pen, in the Legislature and at the meetings of State or local medical societies, he urged increased accommodation for the insane and better facilities for their curative treatment. It is most interesting to observe in his annual reports how steadily he has kept pace with the onward march of scientific treatment. The present condition of the institution at Warren shows conclusively that years have not interrupted his plans or checked his zeal to provide everything for his patients which knowledge could suggest or liberality procure.

He has also served the American Medico-Psychological Association longer than any of his associates, being secretary and treasurer from 1858 until 1892, vice-president in 1892 and 1893, and president in 1894, and is the oldest member of the Association. Few people enjoy the happiness of looking back upon a period of 56 years of faithful, earnest and effective labor in behalf of the insane. It is the universal wish of his many friends that in vigorous health he may long enjoy his well-earned repose. Those who listened to his address in Philadelphia in 1894, at the Semi-Centennial of the Association, will remember its wealth of reminiscence. In his long career he had come into intimate contact with all of the alienists of the country and his impressions of them were vividly and faithfully recorded. It is earnestly hoped that Dr. Curwen may be induced, in the more abundant leisure which will now be his, to add to the sketches already printed.

THE PATHOLOGY OF INSANITY.—The *Medical News* has recently delivered itself¹ as to the care and treatment of the insane in strictures as severe as the writer's knowledge of the issues involved is wide of the mark. Its complacent and wholesale disparagement is quite in keeping with that widespread ignorance of the actual status of psychiatry that obscures the judgment of the profession at large. We quote:

"As we have said over and over again, the pathology of insanity is absolutely unknown. Dr. Wise speaks of the modern treatment of the insane and points to it as one of the triumphs of clinical observation and study, but every one knows that what he calls the treatment of the insane is only the application to insane people of the ordinary rules of hygiene, sanitation and dietetics, together with the treatment of intercurrent medical and surgical diseases. But treatment of insanity—the condition which justifies the presence of the insane in the State institution—there is none. State hospitals are custodians of the insane, and bear very much the same relation to the inmates as the physician of the penitentiary does to its inmates. Both look after the hygienic and sanitary conditions and both treat any intercurrent diseases or conditions that may arise. But no more treatment is known or applied to insanity, *per se*, than is known and applied to the mental or moral degeneracy that produces crime. Until some knowledge of the pathology of insanity has been gained there is no possibility of any scientific treatment of it, and the only hope of obtaining this requisite knowledge lies in the work instituted by Dr. Van Gieson of the New York Pathological Institute and in similar institutions."

This astounding paragraph expresses a view of practical psychiatry that throws more light upon the recklessness with which well-meaning but ill-informed reformers are wont to sit in judgment upon the tasks of others than upon the needs of the actual situation.

It would hardly seem worth while to honor such statements with criticism were it not a common experience that the mental attitude which they tend to produce, not only in the medical public, but in the State hospitals for the insane, is a menace and an impediment to sound cooperation in the study of psychiatry.

¹ Vol. 76, p. 966.

In order to do justice to psychiatry let us apply the writer's ideas to the highly meritorious and seemingly legitimate functions of the general practitioner, of dispensaries and of general hospitals. According to his exalted standard, to be under the care of a physician is justifiable only if the patient is treated for the pathological condition from which he suffers. Is not by far the greatest part of therapeutic activity of the symptomatic order and empirically discovered, and, in but a lamentably small percentage, the fruit of that kind of pathology which penetrates the inmost recesses of disease? Has not the pathology of the Vienna school and of Virchow, and even of the great bacteriologists, had a greater success in making therapeutic humbug unnecessary than in furnishing us specific remedies for specific disorders? And does not the knowledge of pathology, as shown in the treatment of general diseases, and, for that matter, of many nervous affections, rest upon a broader and less scrupulous basis than that suggested in the editorial? One need but instance typhoid fever, tuberculosis, tabes, headaches and the like.

From this common medical ground we pass on to psychiatry. "The pathology of insanity is absolutely unknown." Shall we then say, "Because we don't know all that can and should be known about insanity, we should, as honest physicians, limit our efforts to writing a meagre certificate and hand over the patient to the tender mercies of the judge, to be dealt with at his pleasure, until the 'pathology of insanity' is discovered?" And should we then glory, as so many physicians do, in our aloofness from all treatment of the mind? As a matter of fact, a great deal is done along the lines of symptomatic and even causal treatment in our modern hospitals for the insane. And if the writer of the editorial should ponder the features in which modern pathology has achieved its most brilliant successes, to wit, in etiology and prevention, what about knowledge of these questions as affecting psychiatry? We answer our own question by declaring that at least thirty per cent of all cases admitted to hospitals for the insane might receive efficient prophylactic treatment if the existing knowledge of pathology were heeded. Osler brings his indictment against cities as guilty of typhoid epidemics in the face of the clearest knowledge of pathology; and we alienists may well speak with like reproach of alcoholic psychoses and general

paralysis, resting as they do on equally reliable pathology, *i. e.*, accurate observation of conditions of disease. Or are the facts less acceptable, forsooth, because they do not grow in culture-tubes? In a large percentage of further cases we stand at least on as safe ground as the general practitioner with his "colds" and "run down conditions." Moreover, when we come to treatment itself, we see many indications promptly answered to the manifest benefit of the patient in directions fully as dignified as those of the tonics and placebos of every practitioner, and decidedly nearer actual medical services than is borne out by the contemptuous penitentiary simile of the writer.

But little reflection is necessary to see how thoughtless is the statement that "treatment of insanity—the word which justifies the presence of the insane in the State institution—there is none, and that the pathology of insanity is absolutely unknown."

To be sure, medicine is not the science of absolute knowledge, and our common sense tells us that in pathology, *i. e.*, medical experience credited by facts, there are many degrees; but absolutely to deny psychiatry or the pathology of mental disease any existence whatsoever is an inexcusable sign of ignorance on the part of him who deliberately makes the assertion.

The very nature of mental disease is such as to throw on the institutions duties transcending those of ordinary hospitals. This consideration the editorial writer has been pleased wholly to ignore.

And yet, let us say, in a spirit of that charity and fairness which is conspicuously absent from the article under review, that the writer's purpose may to some extent excuse his misstatement of fact. In so far as the editorial emphasizes the need for more serious research in insanity, we have no fault to find, though it must be confessed that any scientific advance must be predicated upon a better knowledge of the actual status and needs of psychiatry than the writer seems to represent. Pity it is that the loudest friends of the Pathological Institute of the New York State Hospitals should have received so little enlightenment from the work which they extol as to offend even the fairest common sense. Far be it from us, however, to make the Institute responsible for so unworthy a spirit.

If this be the appreciation of psychiatry as it obtains in the

profession at large, what shall we expect from the general public and from legislatures whose function it is to make progress possible by liberal though judicious appropriations that shall be as the sinews of war in our perpetual strife against the disease whose pathology is "absolutely unknown?"

Obituary

LANDON CARTER GRAY, A. M., M. D.

By the death of Doctor Gray America has lost one of its foremost neurologists. He belonged to that first generation of specialists in nervous and mental diseases who were both self-taught and remarkable for their power to utilize large clinical experiences. By dint of hard work such men as Gray accomplished quite as much as those who acquired their learning in the university laboratories here and abroad. He was a student by instinct and an omnivorous reader, and thus came to represent the scholar in medicine—as rare a bird as the scholar in politics. Gray was, above all, a man of wide general information, of broad culture, and of great refinement. Medicine will need more such devotees if it is to maintain its proud position among the “learned” professions. It was a pleasure to be associated with him, and to listen to his words as they came unfettered from his lips. His influence as a teacher was largely due to lucid presentation of every subject and to the ease of diction in which he reminded one of famous French masters.

The story of his life is easily told. He was born in New York city April 3d, 1850; his earliest years were passed on Staten Island, until he entered Columbia College. His studies were interrupted by a serious eye-trouble which left one eye practically useless throughout life—a fact which was carefully concealed from his most intimate associates. It was the eye trouble which necessitated his going abroad, and which afforded him the opportunity of studying at the University of Heidelberg, where he laid the foundation of that broad general training to which we have referred. On his return from Europe he began the study of medicine and was graduated from Bellevue in 1873. He was attracted first to surgery, as assistant to Dr. James R. Wood, but soon took up the study of neurology. He began practice in New

York, but soon moved to Brooklyn, where for many years, he enjoyed the benefits and endured the stress of a large consulting practice. In 1886 he returned to New York city, where his labors were appreciated by a large clientele. His ability and suavity of manner were certain to win favor for him among all classes of the community. He was a man of positive convictions, and of a very convincing manner, two qualities which made him a great favorite as a medico-legal expert.

Doctor Gray was not a prolific writer. He will be remembered chiefly by his observations on variations in the surface temperature of the scalp as an aid to the diagnosis of intracranial affections; by his studies on melancholia, though some dissented from his conclusions; and by his text-book on mental and nervous diseases which was well received by the medical public and has passed through several editions. In this book his best qualities as a conscientious teacher and a happy writer on subjects neurological are distinctly visible.

He was the recipient of all the usual honors: he was made President of the American Neurological Association; was Consulting Neurologist to the Hospital for the Ruptured and Crippled, and for nearly eighteen years Professor of Mental and Nervous Diseases in the New York Polyclinic. His charming personal qualities made him a power among the students and the faculty of that institution.

On May 8th, 1900, barely 50 years of age, Landon Carter Gray succumbed to chronic nephritis from which he had been suffering for several years. Short as his life was, it was varied and busy enough: a life well spent and an enduring example to the younger men whose special friend he ever was and whose ambitions he shared and understood.

B. S.

Abstracts and Extracts

ON THE DEVELOPMENT OF THE CELLULAR ELEMENTS IN THE HUMAN CEREBRAL CORTEX.¹—Preliminary communication by Prof. W. v. BECHTEREW, St. Petersburg.

In an investigation of human foetal brains by Golgi's method, carried out in my clinic, we have succeeded in obtaining admirable stains of the nerve-cells of the cerebral cortex, both at the time of their original formation, and in their later growth and development. These preparations lead me to formulate the following statements in regard to the nerve-cells of the cerebral cortex:

1. The first development of cortical cells from the embryonic elements is preceded by the formation of peculiar fibres, colored black by the Golgi method, which proceed in close ranks from the superficial layer, which is likewise stained black, descend into the embryonic cerebral tissue, and crowd between the embryonic cells or corpuscles. At the very first, only very short fibres are found, entering into the most external part of the cortex; later these fibres appear of considerable length, and penetrate into deeper layers.

2. The nerve-cells themselves develop as follows: The above-mentioned primitive fibres, during their growth, penetrate between the embryonic corpuscles and form knee-like folds or flexures about the latter, which they finally envelop completely on all sides. Thus originates the rounded, more commonly oval skeleton of the future nerve-cell. The part of the primitive fibre which is directed outward becomes the apical process of the cell, which thus represents the oldest of the nervous processes.

3. Every embryonic corpuscle, remaining unstained by the Golgi method, serves, during the above-described development of the nerve-cell, for the formation of the nucleus; the substance of the fibre which envelops the embryonic corpuscle is applied to the formation of the protoplasm of the cell. Accordingly, in the earliest stages of development, the nuclei of the cells appear entirely unstained, and the quantity of the surrounding protoplasm very insignificant in proportion to the size of the nucleus.

4. In the further course of development, lateral processes arise from the oval skeleton of the cell-body, in the form of stout prickles, which

¹ Address with demonstration of specimens, delivered in the scientific meeting of the physicians of the psychiatric and nervous clinic in St. Petersburg, April 15, 1899.

develop into dendrites. The bodies of the cells themselves thus become angular and acquire externally the pyramidal form. At the same time, the crooks of the primitive fibres give origin, in their further growth, to thorn-like excrescences, which, in time, are transformed into collaterals of the apical dendrites.

5. The axis-cylinders evidently belong to the later formations in the nerve-cell, for the original rudiments of the cells are entirely destitute of neuraxons. There are many indications that the axis-cylinders develop from the nuclei of the nerve-cells—the former embryonic corpuscles—but this requires further confirmation. The collaterals of the axis-cylinders arise later than their main fibres, from the bead-like enlargements of the latter.

6. The abundant formation of the protoplasmatic processes and of their further ramifications, is likewise a phase of the later development of the cell, as young cells have a relatively well-developed apical process while either almost entirely lacking both basal and lateral dendrites or showing only an extremely limited number of short basal processes. Only gradually, with progressive growth of the cell-body, the basal processes arise and elongate, and thereupon the apical process begins to branch, as we see it in the fully-developed cell.

7. As to the so-called pyriform appendices, they are entirely lacking on younger cells, and are not developed on the processes of the cells until the latter have attained their definitive form. They seem to make their appearance first, and in great abundance, on the early developed apical processes. With the appearance of the dendrites, the number of these appendages continually increases.

8. The different regions of the cortex are far from developing simultaneously. While, for example, distinct rudiments of nerve-cells are to be found in the sensori-motor region, in other districts, the cornu ammonis, for instance, only primitive fibres, without a trace of cell formation, are to be seen. Even in the different layers of one and the same region of the cortex the cellular elements do not come to development at the same time, but those of the deeper layers, the layer of large pyramids, for instance, earlier than those of the superficial layers of the cortex.

9. In general, the nerve-cells of the cerebral cortex belong among the youngest elements of the central nervous system. Their earliest rudiments appear at a time when the elements of the ganglia are relatively well advanced, and those of the spinal cord already fully developed.

Neurol. Centralblatt, Sept. 15, 1899.

Fragnito, in a preliminary note published in *Centralblatt f. Nervenheilkunde*, January, 1900, makes some statements that are of interest in connection with the foregoing observations of Prof. Bechterew. He claims to have found evidence that the nerve-cells are not, embryologically, simple cells, but that both the bodies of the cells and their neuraxons are formed by the coalescence of a number of elements, originally

distinct. After giving an account of the process as observed by him in the pons and medulla oblongata, he describes the development of the cells of the cerebral cortex as follows:

In the cortex of the cerebrum the process of development of the nerve-cell, if not identical with that before described, is at least very analogous to it. Here also the incorporation of primary with secondary cells can be demonstrated, but the principal part in the process of formation of the pyramidal cell belongs to the apical process.

In a section of the cortex of a nearly full-term foetal dog three layers can be distinguished: an upper or superficial, very thick, consisting of spheroidal or elliptical cells, arranged in close ranks vertically to the surface; a very thin lower or inner layer, bordering on the white substance, and consisting of elements which are very similar to those of the upper layer, and a middle layer, which increases in thickness at the cost of the other two, and consists of more highly-developed elements. This layer attracts attention at the first glance by its more saturated coloring; it is then seen that the elements which compose it are less numerous and larger. They almost resemble the before-described primary nuclei of the medulla and pons, while the elements of the other two layers resemble more the secondary nuclei. But even in the middle layer, secondary nuclei are not entirely wanting, and enter into the above-described relations to the primary; only it is to be remarked that the secondary nuclei are often deposited only on one side of the primary, like a hood.

The columns of cells which form the upper layer change into strings of fibres, each of which penetrates into the deeper layers, reaches a primary nucleus, and divides in its neighborhood to embrace it. Often two such fibrillæ unite at the inner pole of the cell, forming a spindle-shaped structure; where this is not the case, the two halves of the fibre diverge, the nucleus being wedged between them, and so give rise to the pyramidal form of the cells. The fibrillary structure, which is evident in the undivided fibre, becomes very distinct after the bifurcation, when the fibres show a disposition to divide. The fibrillæ are sometimes chromatic, sometimes achromatic. The chromatic are more sparsely distributed, and occupy mostly the peripheral part of the apical process; they give me the impression of originating from the membrane of the nucleus.

The author calls attention to Bechterew's observations, which evidently refer to the same structure.

KORSAKOFF'S PSYCHOSIS.

Elzholz (Wiener klin. Woch., 1900, No. 15) points out the relation between Korsakoff's psychosis and polioencephalitis acuta. Korsakoff in 1887 called attention to the fact that certain psychical disturbances often accompany multiple neuritis. He later wrote more fully about this condition which he termed "psychosis polyneuritica or cerebropathia psychica toxæmica." In the lighter grade of the disorder there is

mental exhaustion with loss of memory and the patient becomes irritable and is apprehensive of evil. The severer grade is characterized by apathetic confusion (*Verwirrtheit*) where there is almost complete amnesia and non-appreciation of time and place. The well known appearances of polyneuritis accompany these psychical manifestations. These cases are not necessarily fatal. Korsakoff found in several of his cases small local changes in the brain and spinal cord. Here there were pupillary disturbances, ophthalmoplegia externa, vomiting, and occasionally bulbar symptoms. K. has seen the same mental symptoms in cases where the neuritis was not due to alcohol. He believes the affection of the peripheral nerves and of the brain is produced by some toxic substance circulating in the blood. The polioencephalitis as described by Wernicke is an acute inflammatory process with numerous small extravasations of blood situated most frequently in the neighborhood of the third and fourth ventricles. The nuclei of the nerves supplying the eye muscles are nearly always involved. This disease ends fatally in 10 to 14 days. Two of Wernicke's cases were alcoholics and the psychical symptoms were those of delirium tremens. In the other cases there were disturbances of consciousness of all grades with occasional intervals of agitation. The author quotes and analyzes a number of recovered cases of polioencephalitis. Six of these had the psychical symptoms of polyneuritis with the physical signs of encephalitis. He has had two cases under his observation of Korsakoff's psychosis without any signs of multiple neuritis. He thinks that in alcoholic polioencephalitis death frequently occurs before the polyneuritic psychosis attracts attention. The author accepts Korsakoff's theory that the disease is due to the effects of some poison circulating in the blood. This is either an auto-intoxication or from some external source. In delirium tremens there appears to be another toxin which spends itself upon the ganglion cells while in polyneuritis not only are the ganglion cells affected but many cells and projection fibers degenerate. He concludes that polioencephalitis and polyneuritic psychosis are different manifestations of the same disease process and caused by some toxin. Hence he accepts the term "*Cerebropathia psychica toxæmica*" as conveying the best idea of the symptomatology and pathology.

H. L. K. SHAW.

ENDEMIC AND SPORADIC CRETINISM AND THEIR TREATMENT. (UEBER ENDEMISCHEN UND SPORADISCHEN CRETINISMUS UND DESSEN BEHANDLUNG.)—Professor Wagner V. Jauregg, in *Wiener klinische Wochenschrift*, 10 May, 1900, No. 19.

The author argues for the identity of the two forms of cretinism and after a complete review of the substance of the literature on the subject, points out the similarity of the symptoms when cases which represent an equal degree of the affection are compared. He discusses fully the contention of Ewald and others that the endemic form represents a nervous

affection in which the athyroidea is to be regarded as a complication, and urges that there is not reasonable ground for this assumption. He then reviews the results of treatment by thyroid gland, and urges that the State should assume the treatment of patients in which the disease is endemic, and prevent a sacrifice of life, which is next to tuberculosis and syphilis in the number of its victims. The author's description of the symptoms of the disease is very complete.

Book Reviews

TENTH ANNUAL REPORT OF THE STATE COMMISSION IN LUNACY OF NEW YORK, OCTOBER 1, 1897, TO SEPTEMBER 30, 1898.

The last-issued report of the New York State Commission in Lunacy is in two volumes, the first comprising the report of the Commission proper, the second being made up of the reports of the various State Hospitals and of the State Charities Aid Association. We learn that the whole number of committed insane in the State, public and private, on September 30, 1898, was 22,386, of whom 21,531, including 686 patients in the State Hospitals for the Insane Criminals, were in State Hospitals, and 855 were in licensed private institutions. The expenditures for the care of the patients in the State Hospitals, construction and maintenance of buildings, etc., during the year were: For care and maintenance, including salaries of officers, wages of employees, clothing, food, ordinary repairs and all incidental expenses, \$3,821,620.70. Expenses on account of new buildings to be occupied by patients and employees, \$563,080.84. Expenditures for new buildings other than those occupied by patients and employees, \$293,905.75. Expenses for repairs, renewals, improvements and furniture not included in fixed charges and maintenance, \$448,501.25. Expenditures for the maintenance of the Commission and of the Pathological Institute, for the deportation of aliens and non-residents, salaries and expenses of special agents, \$115,210.90. Total expenditures, \$5,242,419.44. The per capita expenditure for what is termed the fixed charges, maintenance, salaries, wages, clothing, food, etc., was \$185.20. The expenditure per patient for all purposes for a year was about \$225. The Commission compares these figures with those of the years from 1865 to 1894 and shows that for the average number of patients for each year the expenditure was \$345 per patient. This statement is a little vague, as one is at once inclined to question whether this sum of \$345 was the amount which the State expended in buildings and their maintenance exclusive of what was paid by the counties for the care and maintenance of the patients—since during the period mentioned public patients were supported by the counties in the State Asylums—or whether the per capita expenditure by the counties for maintenance of patients in State Asylums should be added to the State expenditure for buildings, repairs, officers' salaries, etc. If the latter sum is included in the expenditure of \$345 for each patient, the showing made by the Commission is not a very great improvement over the cost for the period from 1864 to 1894, during which time the State made provision in the way of new buildings for all of the insane now under care in public institutions—with the exception of the accommodations then in existence at the State Hospital at

Utica—and erected the hospitals at Willard, Poughkeepsie, Middletown, Binghamton, Buffalo, Ogdensburg, and the new hospital at Matteawan for insane criminals.

The percentage of recoveries on original admissions, 4473 in number, was 22.76; the percentage of deaths in the daily average population was 8.5.

On pages 24-25, in its discussion of the standard of care and maintenance, and especially of the distinction between the chronic and the acute insane, the Commission seems to be reviewing with some question the remarks upon the same subject which were made in its third report. It will be remembered that the Commission said at that time that the reasons for attempting to distinguish between the chronic and the acute cases in the care of the insane, which had led to the adoption of the method prevailing in New York State previous to the formation of the present Commission, were based on a "pitifully strained plea for economy, namely, the presumable saving which might be effected, upon the assumption that the insane who were believed to be beyond cure might need less medical attention, possibly a less generous diet, less diversion and amusement, less of all other comforts and enjoyments which go to make life bearable for this unfortunate class doomed to long-continued periods of deprivation of liberty." The statement which we have quoted did not by any means represent the principles held by those who advocated separate hospitals for acute cases and for chronic cases with the best standards of care. It was not proposed that there should be less generous diet, or less of any or all of the necessary "comforts and enjoyments which go to make life bearable." It was held, however, that when it became well established that a certain group of patients had lapsed into chronic insanity, and there was to all intents and purposes no prospect of recovery for any of the group, that they might be cared for in the future in larger numbers with a smaller medical staff and a smaller proportion of nurses; and that the patients might devote, as they did at Willard Asylum, a considerable portion of their energy to their self-support, with the result of very greatly diminishing the cost per patient. The experience at the Willard Asylum, and to some extent at Binghamton, proved that this was true, and the patients in these two hospitals received no less of the necessary "comforts and enjoyments of life," and as much diversion and amusement and as generous a diet, as the same class of patients now receive at, we believe, a very much increased cost per person over the expenditure at Willard. The Commission in its third report said: "Granting that by the proper classification and the removal of quiet and harmless cases and of those whose disease have (*sic*) been of long standing, an actual saving in attendants, in the cost of medical care, etc., might be effected, it would be too small to deserve serious consideration." In the present report, on page 24, the Commission says: The curable insane form only a small proportion of the 22,000 persons now under care in the State, that approximately these may be placed at ten per cent, the great body of insane persons in State Hospitals belonging to the chronic class. The Commission holds that it would

be impolitic, unwise and wrong to assign all the chronic insane to incurability; but, on the other hand, that it would not be justifiable to put this class of insane under the same expensive hospital conditions as the acute or recent cases were properly placed. The Commission is of the opinion that for the chronic cases one physician can sufficiently observe and attend four hundred patients, while as for the acute classes the proportion of one physician to fifty patients would not be too large.

It further states that when the two classes are considered together, the proportion of physicians to patients is about one to two hundred. Any arrangement, however, which classes the acute and chronic insane in the same institutions, unless the staff of the hospital is so divided that one or two physicians confine their medical duties solely to the chronic cases and the remainder of the staff to the acute cases, would result in the time of the physicians being so taken up with a large preponderance of chronic cases that the small number of acute cases could receive but little attention. The suggestion which the Commission makes is really in the line of what was pointed out in this JOURNAL, in a review of former reports, as being the proper and only course which could be pursued, both in justice to the acute cases and to the taxpayers of the State, if the present policy of having acute and chronic cases under the same general care in the various hospitals was to continue; that is, the erection in conjunction with the various State Hospitals, of detached buildings constructed in accordance with the best modern ideas of the treatment of acute cases of insanity where the real medical work and the nursing of the hospital could be concentrated and where in consequence the most valuable functions of the institution to the State would be performed—the bringing about of recoveries. We have a suspicion—and the statistics in the present report of the State Commission appear to confirm this view—that the large admixture of chronic cases and the grouping together of such a large number of patients as has resulted from the change of policy in New York State, has been followed by the diminution in the recovery rate based upon the number of new admissions to the various hospitals for each year. This we believe is a question upon which the Commission should expend its best thought and one which deserves far more attention from the able body of gentlemen who now constitute the New York State Commission in Lunacy than has apparently been heretofore given to the subject.

About one hundred and seventy pages are taken up by the preliminary report on Dietary of Hospitals for the Insane by Prof. Atwater. This report represents the results of such an extensive and elaborate study of the subject that we hope to give it extended notice in the near future.

Chapter VI is devoted to the consideration of the Pathological Institute, and contains the third annual report of the work done there. In view of the fact that the Institute is now undergoing investigation, with some prospect of change in its methods and location, we do not deem it wise at this time to discuss certain features contained in the report. The expenditures for the year ending September 30, 1898, are given at \$38,-

309.51. This is apparently exclusive of the large amount for rental of the premises occupied at present by the Institute.

The medical superintendents of the State Hospitals in New York, and in the discretion of each Board of Managers, one member of each board meet at least once a month at the office of the Commission in Albany, or at some other place designated by the Commission, to confer with the Commission on matters relating to the care and maintenance of the State Hospitals.

Chapter X of the present report, comprising over one hundred and eighty pages, is devoted to what is apparently a stenographic report of these various conferences. The reader, if he be connected with a hospital for the insane in any responsible capacity, doubtless finds in the report of these conferences much of value. On the other hand, if he be one of those unfortunate individuals who has been charged with the responsible administration of a hospital for the insane without a lunacy commission with whom he may confer as to the price of flour, the size of envelope in which he may enclose his correspondence, the propriety of having his potatoes peeled by hand or machinery, the fineness to which his coffee should be ground and how it should be made, the number of times weekly that his patients should be bathed, what he should do with the waste from his kitchens, how he should clean his carpets, and where and how the employees in his engine-room should bathe, must surely wonder at his own temerity in attempting unaided to decide upon these important questions. And when, moreover, he learns that one of the commissioners gravely suggests that a picture of a codfish be prepared and sent to the different hospitals of the State in order that there may be no mistake in the future in buying the genuine article, he will wonder how often the steward, or purveyor of the hospital over which he presides, has unwittingly, because of the absence of such graphic representation, allowed the unfortunate inmates of the institution to feed upon some common fish rather than upon the genuine cod. Certainly we find much in this conference to commend; but, on the other hand, it seems to an outside observer, judging by the tenth report of the Commission, that many things come up for grave and serious consideration at these conferences and subsequent record which might better have been left, as was said in reference to the discussion as to how often patients should be bathed, "to the discretion of the individual superintendents."

First Annual Report of the State Board of Insanity of the Commonwealth of Massachusetts, for the Year ending September 30, 1899. Boston: Wright & Potter Printing Co., 1900.

The report of this board is of great interest to all who care for the insane, as it marks a distinct advance in the policy hitherto pursued in Massachusetts. Those familiar with the public affairs of that State will remember that up to October, 1899, the supervision of the insane was in the hands of the Board of Lunacy and Charity. At this time the board was divided, and since then the duties pertaining to the insane have been wholly in the hands of the Board of Insanity, which is composed

of five members. The act establishing the board requires that "two at least of the members shall be experts in insanity," and it may be said that the State has been fortunate in having the services of Drs. G. F. Jelly and Herbert B. Howard. The act also states that the board shall appoint an executive officer, who shall be a physician and an expert in insanity. The board has been most favored in securing the services of Dr. Owen Copp who has proved himself to be both broad and independent, and at the same time, tactful and conciliatory, important qualities in one who has to exercise functions which may at times bear somewhat heavily upon those who necessarily must be dictated to by him.

The report first states in full the provisions of the act by which it was created. From this it will be seen that it is given wide powers, not only to supervise all the State institutions in which are placed the insane as well as the feeble-minded, the epileptic and dipsomaniac; but also to act as commissioners in lunacy; to approve expenditures for improvements of more than two thousand dollars, and also to exercise the powers of a board of trustees of State institutions. In addition to the specification of its duties as detailed in the act, the board is directed to report to the legislature during its session of 1900, "such method or methods as in its opinion will most effectively provide for the care and support of the insane poor, who, under the existing laws, are cared for or supported at the expense of the cities and towns of the Commonwealth"; also with this to "embody a plan for the remedial or recoverable cases of insanity in hospitals set apart for such treatment," and further a plan by which convalescing patients shall have an opportunity to associate with sane people.

The chief part of the report is taken up with the special report necessitated by the act. This shows that the number of the insane poor under the supervision of the board, October 1st, 1899, was 5,607 or 67.5 per cent of all the insane supervised, and of this number nine hundred were still in almshouses and in private families, under the care of overseers of the poor. The board recommends that after January 1st, 1904, all insane persons who are public charges, shall be supported at the expense of the State and that they shall be cared for in buildings owned or controlled by it. As the first step toward carrying out this new policy, it recommends that a colony for the chronic insane shall be established, and that the legislature of the present year appropriate \$25,000 to purchase not less than 2,000 acres of land for the colony, and \$50,000 to be expended under the direction of a board of trustees, for the construction of buildings and equipment.

It will be seen that these recommendations commit the State to a policy of unqualified State care. It seems hardly possible that Massachusetts, in which Miss Dorothea Dix lived and labored so hard for this very idea, is still in these enlightened days, allowing nine hundred insane persons to be inadequately cared for in almshouses. While this is a reflection upon the State, it may be said on the other hand, that the whole medical profession is unanimous in its endorsement of the board's recommendations and an act embodying them has already passed the house,

and it is confidently expected at the time these words are written that it will be endorsed by the senate and receive the signature of the governor.

It will be noticed that the date set for the inauguration of the new policy is the year 1904, which under the circumstances seems wise, as it will take time for the public to accustom itself to the change in financial arrangements which will result. The amount of money asked for the colony is exceedingly modest, as the board wishes to take the first step only in organizing the colony and then allow the public through its administrative body, the legislature, to take further steps. There are doubtless alienists who do not approve of the colony plan, but when one is brought face to face with the problem of future provision of the insane, as the Massachusetts Board of Insanity has been, it seems inevitable that not only must most hospitals have a department for the chronic cases, but in addition there must be a colony capable of great expansion for a large percentage of this class. The writer himself, when first considering the plans of the board was not wholly in favor of the colony, but as he has little by little, gone carefully over the ground, he is convinced that there is no choice, and he believes that the suggestions of the board in regard to this matter are founded on most careful study and offer without question, the best solution possible.

The plan advanced for organizing the colony is admirable and has evidently been thought out by members of the board having practical knowledge of the subject. "The buildings should be plain, simple and durable," and the standard of care and management also simple, the idea being for the colony to begin with little and to be developed by its own efforts. There are persons who scoff when simple and inexpensive buildings for the insane are proposed, but the writer believes it entirely possible to erect such, as has already been done in several places and doubtless will in the near future be done in Massachusetts.

In regard to acute and convalescent patients, the board believes that each hospital should have separate provision for the former class, the latter being perhaps placed in cottages erected on the hospital grounds. Additions are also suggested for nurses, and infirmary patients and equipment for medical and scientific work.

The board says in conclusion: "The system recommended is comprehensive and would take some time and the gradual expenditure of money to complete; and if perfected will result in a thorough separation of acute from chronic cases and we believe in the best care of both."

Modest and unassuming as the report of the board is, it develops a policy for providing for the insane, which if consistently worked out will meet their needs for many years to come, and for the first time presents a feasible and practical plan, progressive and humane, yet entailing only a moderate expense each year. The breadth of the board's conception, combined with a wise conservatism in suggesting the means to put it into execution, cannot fail to commend that portion of the report dealing with the care of the insane to every one who reads it.

The balance of the report dealing specifically with institutions of the State contains the usual statistics, of which lack of space prevents an analysis in this review.

[Since the above was written the act relative to State care has been enacted with the amendment that the Boston Insane Hospital shall be exempted from its provisions.—Editors.]

Psychiatrie. Ein Lehrbuch für Studierende und Aerzte von Dr. Emil Kraepelin, Professor an der Universität Heidelberg. Sechste, vollständig umgearbeitete Auflage. (Leipzig, Verlag von Johann Ambrosius Barth, 1899.) (*Psychiatry.* By Dr. EMIL KRAEPELIN. Sixth completely revised edition.)

Kraepelin's *Psychiatry* has grown into two volumes, although its bulk is not very greatly increased. The statement on the title page that it is completely worked over (*vollständig umgearbeitet*), is no idle boast. The author is not content to issue reprints under the name of new editions, or even to add a paragraph here and a chapter there. The whole book, from beginning to end, witnesses to his indefatigable industry and his readiness to change his ground whenever he thinks he sees reason for so doing. Opinions may very likely differ as to whether the alterations in this, as compared with the former edition, are all improvements, but they are numerous and important.

The general plan of the work remains the same. The subject is viewed primarily, from the clinical standpoint, the author believing that, in the present state of our knowledge, neither etiology nor pathological anatomy furnishes a satisfactory basis for classification, although he makes use of the former, so far as clinically distinct forms are associated with definite causes. The most original feature of his work is the emphasis which he lays on prognosis. He is never weary of insisting that in attempting to classify our cases, we should take into account, not merely the symptoms at a given time, but the entire course of the disease; that when one case recovers permanently and another, apparently similar, relapses again and again, or lapses into dementia, we have to do, not with fortuitous happenings, but with essentially different processes, and should set ourselves to find out differences in the early symptoms, corresponding to the different results, as we are, for the most part able to do, for instance, in the early stages of general paralysis. Of course, he is not the first to attempt something of the sort. The unfavorable prognosis in paranoia, for instance, has long been recognized, and probably there is no alienist of much experience who does not, in many cases of acute insanity, form a pretty decided opinion, at the outset, as to their probable result. But we are not acquainted with any other work in which the prognosis has been utilized to such an extent as a basis for classification. This feature of the work seems to us worthy of special attention.

Let us consider, in the first place, the author's treatment of the time-honored—for many, still the only—forms of acute insanity, mania and

melancholia. He takes the ground that the so-called periodical and circular insanities and simple mania are only varieties of a single morbid process, which he terms maniacal-depressive insanity (*manisch-depressives Irresein*). Melancholia, as an independent disorder, he recognizes only as a disease of the period of involution. The melancholias of young people he considers either as the depressive phase of the above-named disorder, or symptoms of "*dementia præcox*." He has convinced himself, by following out the histories of his cases, that maniacal and melancholic attacks resulting in temporary recovery, in young people, uniformly recur, sooner or later, either in the same form, or in the alternate phase of circular insanity. The recurrence, it is true, may take place only after the lapse of many years, but that does not, to the author's mind, invalidate the conclusions drawn from the course of the malady in the overwhelming majority of cases. It is, perhaps, hardly necessary to say that he uses the symptomatic terms, mania and melancholia in a more restricted sense than is done for instance, by most English writers. For the diagnostic criteria between these and other more or less similar states we must refer to the original.

It need not be said that if the prognosis in cases of this sort can be definitely settled it will be a great step in advance.

Probably the most striking innovation in the present, as compared with the last preceding edition is in the discussion of "*Dementia præcox*," under which term he includes, provisionally, without attempting to decide whether the morbid process is actually the same in all, a number of clinical forms characterized in common by termination in a peculiar mental enfeeblement. He admits that this unfavorable result is not inevitable without exception, but it is so extremely common that he prefers to hold to this term. Under it he includes, in addition to the class of cases which he described under this head in the preceding edition, which he now characterizes as the "*hebephrenic form*," the cases which he classified as "*Katatonie*" in the last edition, and which he was then half inclined to consider a variety of *dementia præcox*, as the "*katatonic form*," and to these he adds the great majority of the cases which he formerly classified as "*paranoia*," grouping them, along with cases of the condition described by him in the preceding edition as "*dementia paranoides*," as the "*paranoid form*." Under this head he would, provisionally, include a class of cases which he describes as follows:

"The second clinical group which I am inclined, provisionally, to include under this head, is characterized by the fact that extravagant delusions, usually accompanied by numerous hallucinations, develop in a more coherent manner, and are maintained during a series of years, either then entirely to disappear, or to become entirely confused. Hitherto I have reckoned these forms, as '*phantastische Verrücktheit*' to *paranoia*, as is the general practice. It has, however, gradually become clearer to me that they are, at all events, more nearly allied to *dementia præcox* than to *paranoia*. Whether we really have to do in this case only with a clinical variety of the former disease or a distinct malady, the future must decide."

The cases to which he reserves the term "paranoia" he characterizes as follows:

"On the other hand, there is, without doubt, a group of cases in which it is clearly recognizable from the outset that a permanent, immovable system of delusions slowly develops, with entire preservation of mental clearness (*Besonnenheit*), and of the regulation of the course of thought. It is these forms for which I would reserve the appellation of paranoia. It is they which necessarily lead to a profound transformation of the entire view of life; to a dislocation of the point of view which the patient assumes toward the persons and events of his environment."

Paranoia in this sense he finds to be rather a rare disorder, amounting to not more than one per cent of admissions.

To discuss adequately the propriety of including the author's paranoid form with the other cases which he classifies under the head of dementia præcox would carry us too far, and is the less important in view of the fact that he himself does not speak to this effect with any great confidence. We will only say that this class of cases seems to us to lend itself less readily than either of the others to the hypothesis which he advocates on what seem to us rather slight grounds, that the underlying cause of dementia præcox is an autointoxication.

It may be well, at this point, to consider how far the author's assumption, already mentioned, that like morbid processes must have like terminations, is borne out by the facts. To quote one of the many passages in which he advances this view:

"I can only hold such cases of disease as essentially like, which, apart from differences of degree and special accidents, in the main lead to the same end" (p. 429).

It is, we think, to say the least, doubtful if such a view is warranted in regard to disease in general. In syphilis, for instance, no one can predict the course and outcome of the disease with any certainty, even with full control of the treatment and mode of life of the patient. The difference between complete recovery and the various lesions of the most different organs which may characterize the later course of the disease is so great that it is not likely that any one would imagine them to be manifestations of the same morbid process were it not for the common history of the initial lesion. If we admit, for the sake of the argument, the correctness of the author's view that dementia præcox is a toxic condition, it is evident that in a large proportion of cases, at least, the poison, after a time, spends its force. The morbid process ceases to progress, or even retrogrades, to a certain extent, so that the patients are able to resume their ordinary employments with more or less efficiency. There is nothing in what we know of other diseases to make it incredible that the intensity of the poison in one case may be so great as to work irreparable damage to the nervous tissues, while in another it may be so slight as to allow of complete restoration.

From the author's own statements, it would appear that this, or something like it, does occur in a certain proportion of cases. In the hebe-

phrenic form, he finds that in his cases, in about seventeen per cent the mental enfeeblement is only moderate in degree, and in eight per cent the symptoms disappeared to such a degree that it was perhaps justifiable to speak of them as recovered. In the katatonic form, he finds that in about twenty per cent of his cases remissions of the disease, simulating, at least, recovery, last for a long time, although most of them relapse within five years, and recurrence may take place even after ten years. The outcome of the paranoid form is uniformly dementia.

We can refer only briefly to some other characteristics of the work. The author does not trouble himself to invent a definition of insanity that shall exclude some of the most common forms of mental derangement. He treats of febrile delirium, intoxications, the mental disturbances of myxœdema, of neurasthenia, hysteria, and the "fright-neurosis" of the fixed and insistent ideas and impulses, along with the forms to which the unscientific attempt has been made to limit the application of the term.

In regard to the connection between syphilis and general paralysis, he finds that syphilis has preceded the outbreak of the disease in too large a proportion of cases to be accounted for as fortuitous, although he does not commit himself to the view that it is essential. On the other hand, he does not admit that general paralysis is merely a manifestation of syphilis. In his view it is due to an autointoxication, affecting not merely the nervous system, but the entire organism. He suggests, as possible analogies, the fact that syphilis may cause myxœdema by destruction of the thyroid, and the frequent production of Addison's disease by tuberculosis, although in neither case is there any relationship between the diseases.

In the matter of therapeutics, the stress which the author lays on the advantages of the continual bath in the treatment of motor restlessness is worthy of mention. He considers it far superior to any other measure in such cases. It must not be supposed that he uses it as a form of mechanical restraint; on the contrary, he reprobates entirely the use of any sort of cover, and depends entirely upon the quieting effect of the measure and the discomfort which the patient experiences on getting out of the water to do away, in a short time, with any difficulty in inducing him to remain in the tub.

Pathological anatomy does not occupy a large part of the book; the author bases this part of the work on Nissl's researches, and the illustrations are principally photomicrographs of cells stained after his method.

No notice of the book would be complete which should fail to mention the force and vivacity of the author's style. It is eminently a readable book, as well as, to our mind, in spite of some questionable hypotheses, a very satisfactory one in its classification and delineation of the diseases of which it treats.